

# **Potential Flow Forces and Moments from Selected Ship Flow Codes in a Set of Numerical Experiments**

## **Appendix M — Minimum and Maximum Plots for Prescribed Roll Motion of Model 5613**

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M-821.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-590
M-822.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-590
M-823.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-591
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M-834.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2. . . . .	M-598

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M-835.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN. . . . .	M-599
M-836.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1. . . . .	M-599
M-837.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-600
M-838.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-600
M-839.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-601
M-840.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-601
M-841.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1. . . . .	M-603
M-842.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2. . . . .	M-603
M-843.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN. . . . .	M-604
M-844.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1. . . . .	M-604
M-845.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-605
M-846.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-605
M-847.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-606
M-848.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-606

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M-849.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1. . . . .	M-608
M-850.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2. . . . .	M-608
M-851.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN. . . . .	M-609
M-852.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1. . . . .	M-609
M-853.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-610
M-854.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-610
M-855.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-611
M-856.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-611
M-857.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1. . . . .	M-613
M-858.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2. . . . .	M-613
M-859.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN. . . . .	M-614
M-860.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1. . . . .	M-614
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M-862.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-615



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M-863.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-616
M-864.	Minimum and Maximum of $M_y^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-616
M-865.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1. . . . .	M-618
M-866.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2. . . . .	M-618
M-867.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN. . . . .	M-619
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M-869.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-620
M-870.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-620
M-871.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-621
M-872.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-621
M-873.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1. . . . .	M-623
M-874.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2. . . . .	M-623
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M-876.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1. . . . .	M-624

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M-877.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-625
M-878.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-625
M-879.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-626
M-880.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-626
M-881.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1. . . . .	M-628
M-882.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2. . . . .	M-628
M-883.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN. . . . .	M-629
M-884.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1. . . . .	M-629
M-885.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-630
M-886.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-630
M-887.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-631
M-888.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-631
M-889.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1. . . . .	M-633
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M-891.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN. . . . .	M-634
M-892.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1. . . . .	M-634
M-893.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-635
M-894.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-635
M-895.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-636
M-896.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-636
M-897.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1. . . . .	M-638
M-898.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2. . . . .	M-638
M-899.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN. . . . .	M-639
M-900.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1. . . . .	M-639
M-901.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-640
M-902.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-640
M-903.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-641
M-904.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-641

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M-905.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1. . . . .	M-643
M-906.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2. . . . .	M-643
M-907.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN. . . . .	M-644
M-908.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1. . . . .	M-644
M-909.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3. . . . .	M-645
M-910.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4. . . . .	M-645
M-911.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA. . . . .	M-646
M-912.	Minimum and Maximum of $M_z^{\text{rad}}$ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO. . . . .	M-646

### Introduction

This appendix contains plots and tables related to the minimum and maximum value of each variable versus the roll amplitude  $\phi_a$  for the prescribed roll motion of Model 5613 in task 1. The plots are found in Figures M–1 through M–114. For each variable, speed, and frequency there is one plot that depicts the results from all the codes. If  $f$  stands for a time-dependent variable, then the quantities plotted are the minimum and maximum of

$$f^* \equiv \frac{f - \langle f \rangle}{\phi_a}$$

where  $\langle f \rangle$  is the mean. Only filtered values  $f$  are used since filtered values lessen the impact of spikes that probably originate in numerical filtering schemes in the codes. Linear variation as a function of the amplitude appears as a horizontal line. Quadratic variation appears as a straight line with a nonzero slope.

Tables M–1 through M–912 in this appendix correspond to the plots. Following each plot is one table for each of the eight codes for which data were received. The tables give information about the mean, the minimum and maximum of the unfiltered variable, the minimum and maximum of the filtered variable, and the starred function depicted in the figure.

For the corresponding time history plots, the reader is referred to Appendix C.

# TASK 1/ROLL MOTION/MODEL 5613

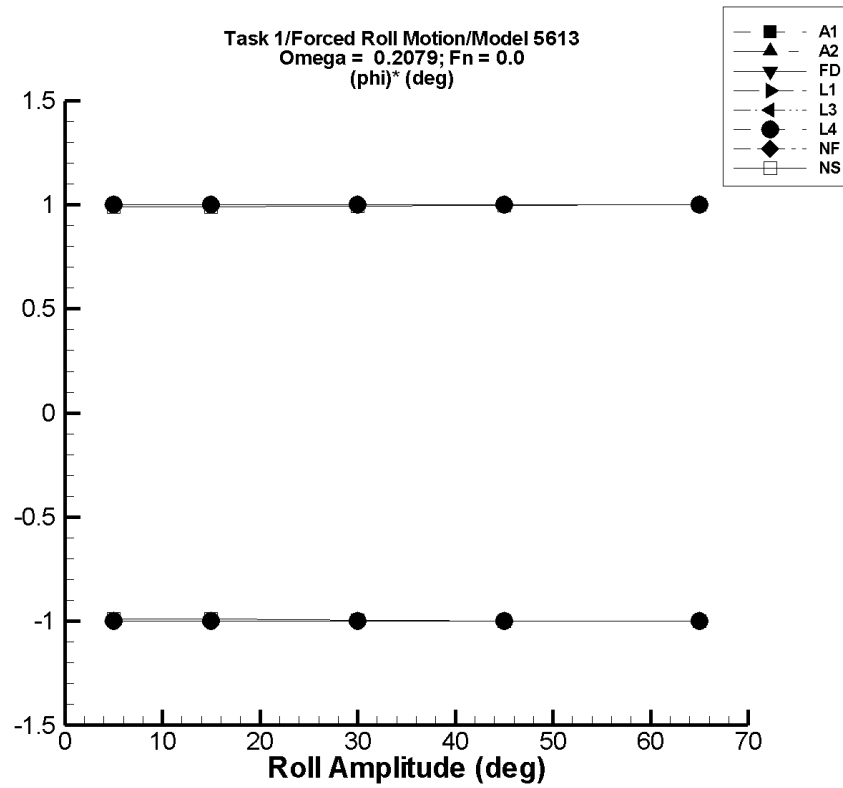


Figure M-1. Minimum and Maximum of  $(\phi)^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–1. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00
15.	-1.17E-05	-15.0	15.0	-15.0	15.0	-0.999	1.00
30.	-2.30E-05	-30.0	30.0	-30.0	30.0	-0.999	1.00
45.	-3.89E-05	-45.0	45.0	-45.0	45.0	-0.999	1.00
65.	-4.87E-05	-65.0	65.0	-64.9	65.0	-0.999	1.00

Table M–2. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00
15.	-1.17E-05	-15.0	15.0	-15.0	15.0	-0.999	1.00
30.	-2.30E-05	-30.0	30.0	-30.0	30.0	-0.999	1.00
45.	-3.89E-05	-45.0	45.0	-45.0	45.0	-0.999	1.00
65.	-4.87E-05	-65.0	65.0	-64.9	65.0	-0.999	1.00

Table M–3. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.60E-07	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	-3.88E-07	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	-2.43E-06	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	-4.26E-09	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	-8.71E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–4. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00



Table M-5. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered ( $\phi$ )*	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M-6. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered ( $\phi$ )*	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M–7. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered ( $\phi$ )*	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–8. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered ( $\phi$ )*	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	4.90E-07	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	1.98E-06	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	4.50E-06	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	-4.90E-06	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	6.33E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

# TASK 1/ROLL MOTION/MODEL 5613

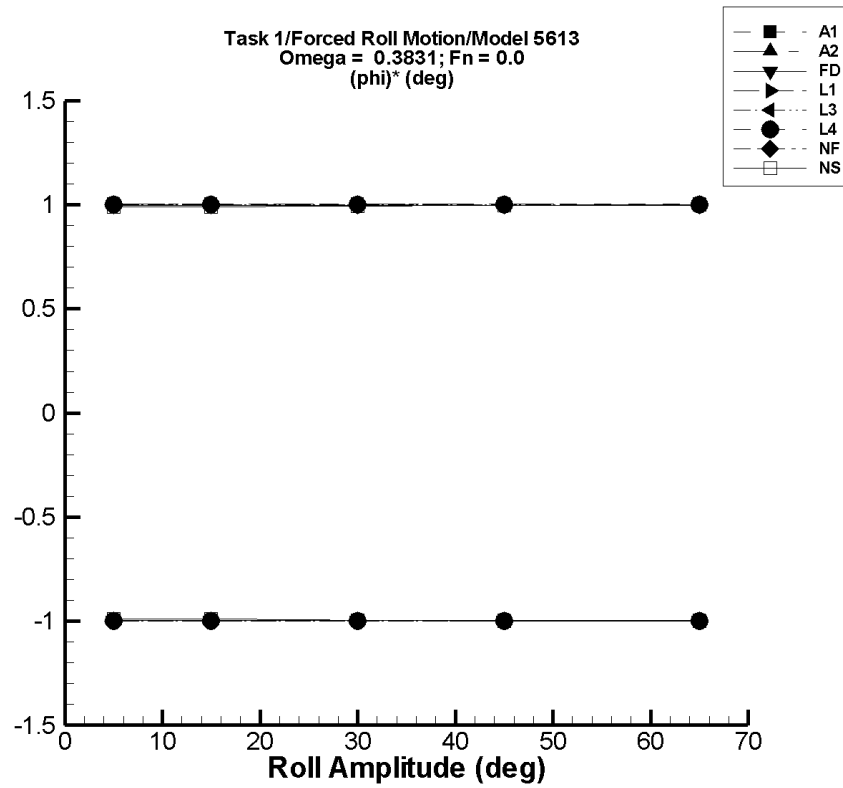


Figure M-2. Minimum and Maximum of  $(\phi)^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–9. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00
15.	1.18E-06	-15.0	15.0	-14.9	15.0	-0.996	1.00
30.	1.43E-06	-30.0	30.0	-29.9	30.1	-0.996	1.00
45.	-3.38E-06	-45.0	45.0	-44.8	45.1	-0.996	1.00
65.	9.03E-06	-65.0	65.0	-64.8	65.2	-0.996	1.00

Table M–10. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00
15.	1.18E-06	-15.0	15.0	-14.9	15.0	-0.996	1.00
30.	1.43E-06	-30.0	30.0	-29.9	30.1	-0.996	1.00
45.	-3.38E-06	-45.0	45.0	-44.8	45.1	-0.996	1.00
65.	-4.27E-05	-65.0	65.0	-64.8	64.8	-0.996	0.996

Table M–11. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.50E-07	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.43E-06	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.46E-06	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	3.83E-06	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	9.18E-06	-65.0	65.0	-64.8	64.8	-0.996	0.996

Table M–12. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–13. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–14. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

# TASK 1/ROLL MOTION/MODEL 5613

Table M–15. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered ( $\phi$ )*	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–16. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered ( $\phi$ )*	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	3.61E-08	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	5.14E-07	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	7.65E-08	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	1.61E-07	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	5.38E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

# TASK 1/ROLL MOTION/MODEL 5613

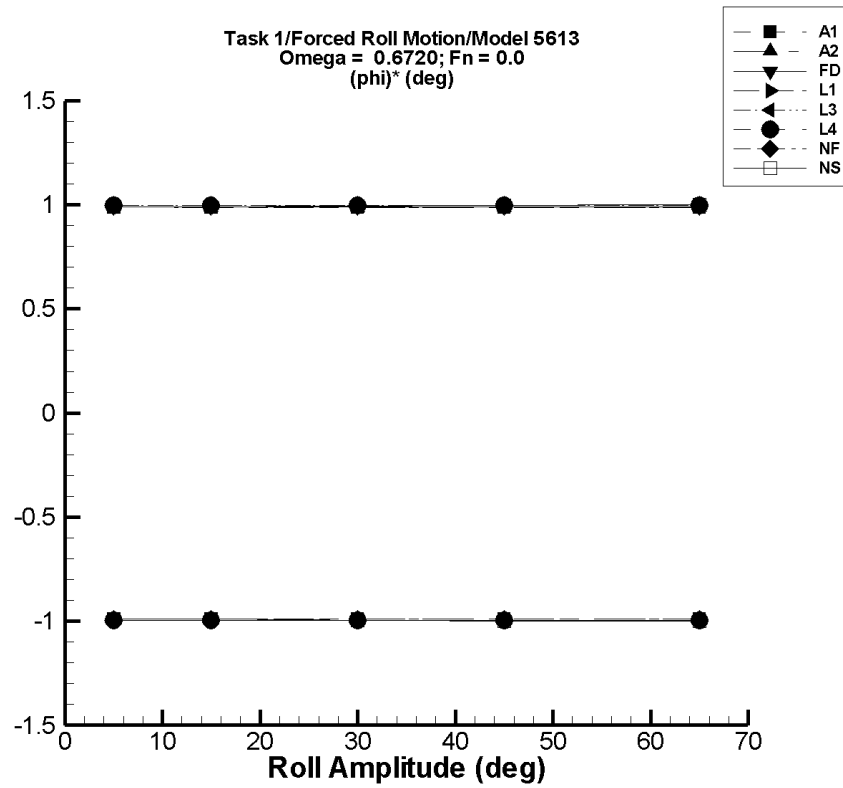


Figure M-3. Minimum and Maximum of  $(\phi)^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency  $0.6720$  rad/sec and Froude number  $0.0$ .



Table M–17. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-4.92E-06	-5.00	5.00	-4.94	4.94	-0.989	0.989
15.	-1.51E-05	-15.0	15.0	-14.8	14.8	-0.988	0.988
30.	-2.94E-05	-30.0	30.0	-29.7	29.6	-0.988	0.988
45.	-4.72E-05	-45.0	45.0	-44.5	44.5	-0.988	0.988
65.	-6.81E-05	-65.0	65.0	-64.2	64.2	-0.988	0.988

Table M–18. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-4.92E-06	-5.00	5.00	-4.94	4.94	-0.989	0.989
15.	-1.51E-05	-15.0	15.0	-14.8	14.8	-0.988	0.988
30.	-2.94E-05	-30.0	30.0	-29.7	29.6	-0.988	0.988
45.	-4.72E-05	-45.0	45.0	-44.5	44.5	-0.988	0.988
65.	-6.81E-05	-65.0	65.0	-64.2	64.2	-0.988	0.988

Table M–19. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-6.65E-06	-5.00	5.00	-4.97	4.94	-0.995	0.988
15.	-1.95E-05	-15.0	15.0	-14.9	14.8	-0.995	0.988
30.	-3.96E-05	-30.0	30.0	-29.8	29.7	-0.995	0.988
45.	-5.69E-05	-45.0	45.0	-44.8	44.5	-0.995	0.988
65.	-8.29E-05	-65.0	65.0	-64.7	64.3	-0.995	0.988

Table M–20. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M–21. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M–22. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M–23. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–24. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-2.79E-07	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	-8.78E-07	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	-1.39E-06	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	-1.04E-06	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	4.61E-07	-65.0	65.0	-64.9	64.9	-0.999	0.999

# TASK 1/ROLL MOTION/MODEL 5613

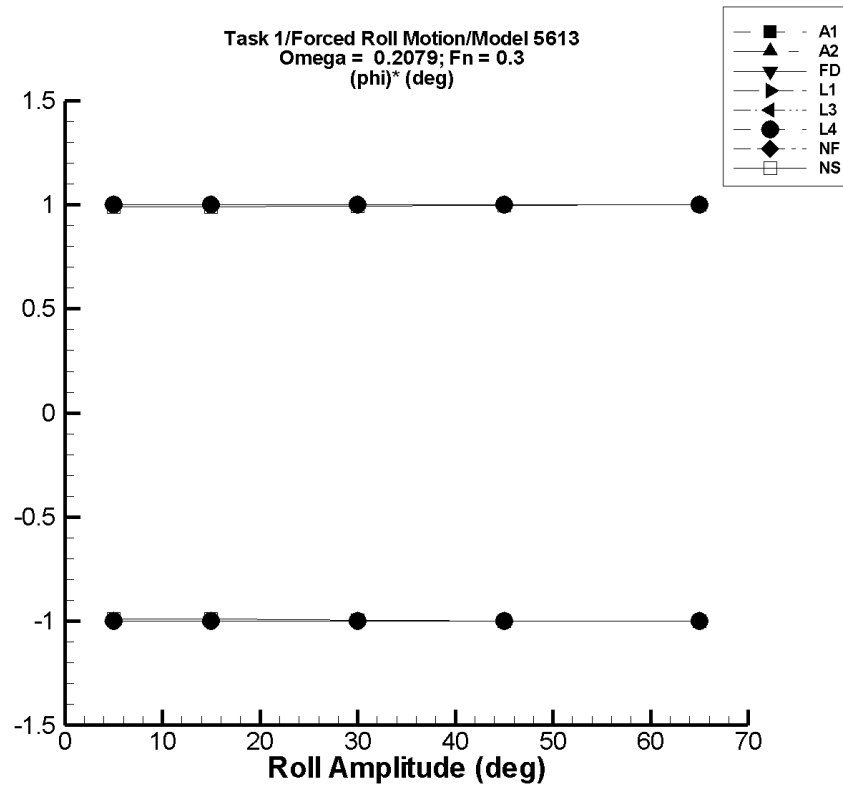


Figure M-4. Minimum and Maximum of  $(\phi)^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–25. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00
15.	-1.17E-05	-15.0	15.0	-15.0	15.0	-0.999	1.00
30.	-2.30E-05	-30.0	30.0	-30.0	30.0	-0.999	1.00
45.	-3.89E-05	-45.0	45.0	-45.0	45.0	-0.999	1.00
65.	-4.87E-05	-65.0	65.0	-64.9	65.0	-0.999	1.00

Table M–26. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00
15.	-1.17E-05	-15.0	15.0	-15.0	15.0	-0.999	1.00
30.	-2.30E-05	-30.0	30.0	-30.0	30.0	-0.999	1.00
45.	-3.89E-05	-45.0	45.0	-45.0	45.0	-0.999	1.00
65.	-4.87E-05	-65.0	65.0	-64.9	65.0	-0.999	1.00

Table M–27. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.60E-07	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	-3.88E-07	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	-2.43E-06	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	-4.26E-09	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	-8.71E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–28. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M–29. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M–30. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00



Table M–31. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–32. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	4.90E-07	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	1.98E-06	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	4.50E-06	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	-4.90E-06	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	-3.48E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

# TASK 1/ROLL MOTION/MODEL 5613

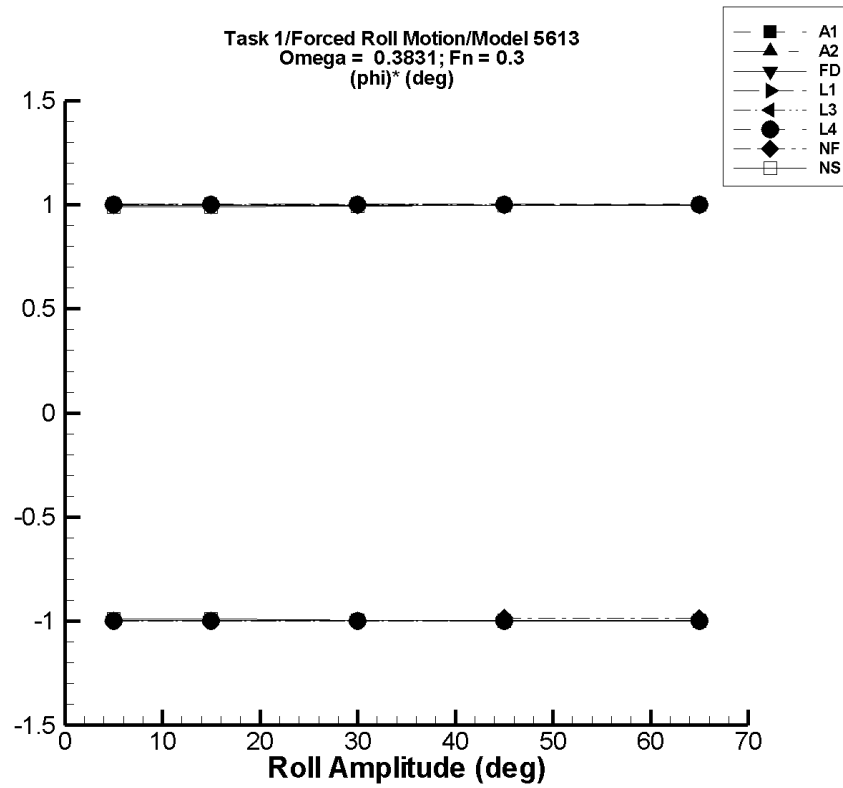


Figure M-5. Minimum and Maximum of  $(\phi)^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–33. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00
15.	1.18E-06	-15.0	15.0	-14.9	15.0	-0.996	1.00
30.	1.43E-06	-30.0	30.0	-29.9	30.1	-0.996	1.00
45.	-3.38E-06	-45.0	45.0	-44.8	45.1	-0.996	1.00
65.	9.03E-06	-65.0	65.0	-64.8	65.2	-0.996	1.00

Table M–34. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00
15.	1.18E-06	-15.0	15.0	-14.9	15.0	-0.996	1.00
30.	1.43E-06	-30.0	30.0	-29.9	30.1	-0.996	1.00
45.	-3.38E-06	-45.0	45.0	-44.8	45.1	-0.996	1.00
65.	-4.27E-05	-65.0	65.0	-64.8	64.8	-0.996	0.996

Table M–35. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	1.50E-07	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.43E-06	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.46E-06	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	3.83E-06	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	9.18E-06	-65.0	65.0	-64.8	64.8	-0.996	0.996

Table M–36. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–37. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–38. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

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Table M-39. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered ( $\phi$ )*	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-0.218	-30.0	30.0	-29.8	29.8	-0.986	1.00
45.	-0.327	-45.0	45.0	-44.7	44.7	-0.986	1.00
65.	-0.473	-65.0	65.0	-64.6	64.6	-0.986	1.00

Table M-40. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered ( $\phi$ )*	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	3.61E-08	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	5.14E-07	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	7.65E-08	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	1.61E-07	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	5.38E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

# TASK 1/ROLL MOTION/MODEL 5613

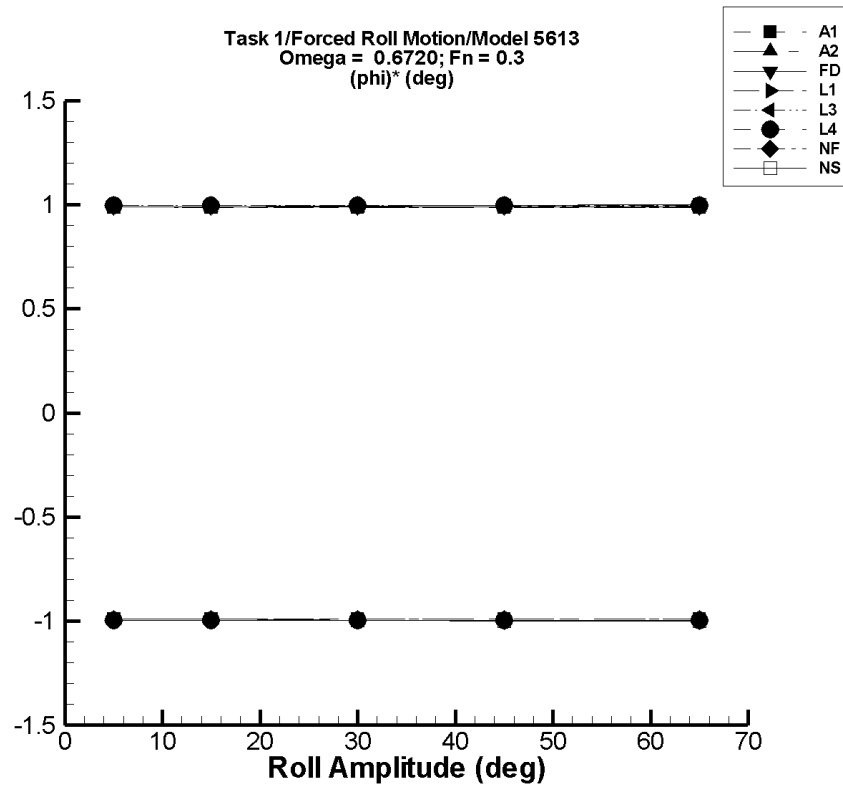


Figure M-6. Minimum and Maximum of  $(\phi)^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–41. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-4.92E-06	-5.00	5.00	-4.94	4.94	-0.989	0.989
15.	-1.51E-05	-15.0	15.0	-14.8	14.8	-0.988	0.988
30.	-2.94E-05	-30.0	30.0	-29.7	29.6	-0.988	0.988
45.	-4.72E-05	-45.0	45.0	-44.5	44.5	-0.988	0.988
65.	-6.81E-05	-65.0	65.0	-64.2	64.2	-0.988	0.988

Table M–42. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-4.92E-06	-5.00	5.00	-4.94	4.94	-0.989	0.989
15.	-1.51E-05	-15.0	15.0	-14.8	14.8	-0.988	0.988
30.	-2.94E-05	-30.0	30.0	-29.7	29.6	-0.988	0.988
45.	-4.72E-05	-45.0	45.0	-44.5	44.5	-0.988	0.988
65.	-6.81E-05	-65.0	65.0	-64.2	64.2	-0.988	0.988



Table M-43. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-6.65E-06	-5.00	5.00	-4.97	4.94	-0.995	0.988
15.	-1.95E-05	-15.0	15.0	-14.9	14.8	-0.995	0.988
30.	-3.96E-05	-30.0	30.0	-29.8	29.7	-0.995	0.988
45.	-5.69E-05	-45.0	45.0	-44.8	44.5	-0.995	0.988
65.	-8.29E-05	-65.0	65.0	-64.7	64.3	-0.995	0.988

Table M-44. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M-45. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M-46. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M-47. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	6.83E-02	-30.0	30.0	-29.9	29.8	-0.998	0.992
45.	0.102	-45.0	45.0	-44.8	44.8	-0.998	0.992
65.	0.146	-65.0	65.0	-64.7	64.7	-0.998	0.992

Table M-48. Minimum and Maximum of  $\phi$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle\phi\rangle$ Mean (deg)	Unfiltered $\phi$		Filtered $\phi$		Filtered $(\phi)^*$	
		Min. (deg)	Max. (deg)	Min. (deg)	Max. (deg)	Min. (1)	Max. (1)
5.	-2.79E-07	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	-8.78E-07	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	-1.39E-06	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	-1.04E-06	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	4.61E-07	-65.0	65.0	-64.9	64.9	-0.999	0.999

# TASK 1/ROLL MOTION/MODEL 5613

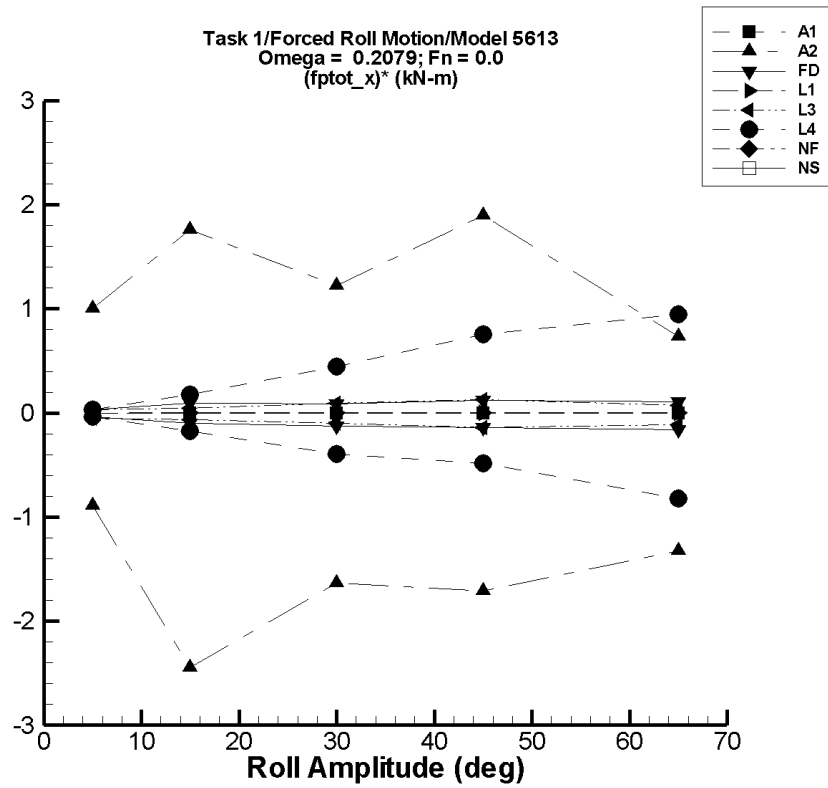


Figure M-7. Minimum and Maximum of  $(F_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

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Table M-49. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
5.	-2.99E-07	-1.94E-05	1.98E-05	-1.13E-05	1.14E-05	-2.20E-06	2.34E-06
15.	-8.97E-07	-5.81E-05	5.92E-05	-3.38E-05	3.42E-05	-2.20E-06	2.34E-06
30.	-1.79E-06	-1.16E-04	1.18E-04	-6.77E-05	6.83E-05	-2.20E-06	2.34E-06
45.	-2.69E-06	-1.74E-04	1.78E-04	-1.02E-04	1.03E-04	-2.20E-06	2.34E-06
65.	-3.89E-06	-2.52E-04	2.57E-04	-1.47E-04	1.48E-04	-2.20E-06	2.34E-06

Table M-50. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
5.	4.58	-5.28E-02	9.66	0.127	9.58	-0.890	1.00
15.	39.4	-4.03E-02	67.0	2.72	65.8	-2.45	1.76
30.	52.1	-5.33E-02	101.	3.14	88.9	-1.63	1.23
45.	79.5	-4.15E-02	177.	2.71	165.	-1.71	1.90
65.	88.7	-317.	177.	2.64	136.	-1.32	0.735

Table M-51. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.84	-8.50	-3.67E-02	3.08E-02
15.	-7.39	-8.84	-5.98	-8.82	-5.98	-9.54E-02	9.35E-02
30.	-5.10	-8.84	-2.55	-8.80	-2.56	-0.123	8.46E-02
45.	-2.40	-8.84	3.06	-8.80	3.02	-0.142	0.120
65.	1.74	-8.84	8.60	-8.82	8.56	-0.162	0.105

Table M-52. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.29E-04	-2.61E-03	1.51E-03	-2.53E-03	1.46E-03	-4.01E-04	3.98E-04
15.	-4.76E-03	-2.29E-02	1.33E-02	-2.27E-02	1.31E-02	-1.20E-03	1.19E-03
30.	-1.91E-02	-9.11E-02	5.28E-02	-9.07E-02	5.26E-02	-2.39E-03	2.39E-03
45.	-4.29E-02	-0.204	0.119	-0.204	0.118	-3.58E-03	3.58E-03
65.	-8.94E-02	-0.427	0.247	-0.426	0.247	-5.18E-03	5.17E-03

Table M-53. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.07E-02	3.01E-02
15.	-38.2	-39.2	-37.5	-39.2	-37.5	-6.59E-02	4.75E-02
30.	-36.2	-39.2	-33.4	-39.2	-33.4	-9.92E-02	9.40E-02
45.	-32.9	-39.2	-27.3	-39.2	-27.3	-0.139	0.126
65.	-31.7	-39.3	-27.1	-39.2	-27.1	-0.115	7.09E-02

Table M-54. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.8	-38.5	-39.1	-38.7	-3.34E-02	2.90E-02
15.	-38.1	-40.8	-35.1	-40.7	-35.4	-0.172	0.177
30.	-35.7	-48.5	-21.4	-47.5	-22.3	-0.393	0.446
45.	-31.1	-55.5	5.70	-52.9	2.89	-0.485	0.754
65.	-23.3	-81.4	42.9	-76.5	38.3	-0.818	0.948

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Table M-55. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-56. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—



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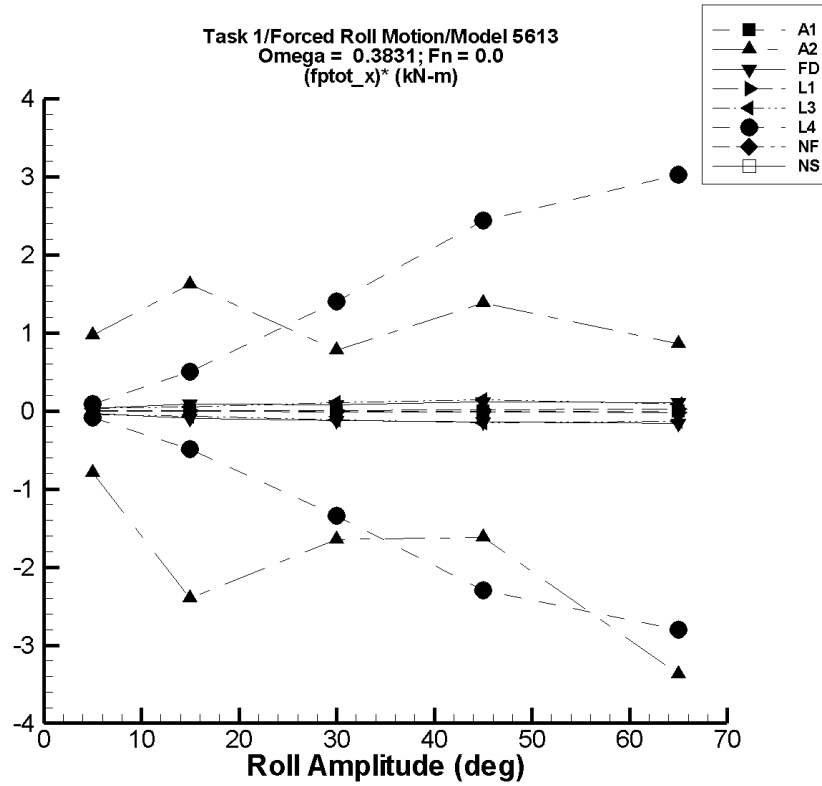


Figure M-8. Minimum and Maximum of  $(F_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M-57. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
5.	-9.17E-07	-5.55E-05	6.35E-05	-2.69E-05	4.36E-05	-5.20E-06	8.91E-06
15.	-2.75E-06	-1.66E-04	1.90E-04	-8.07E-05	1.31E-04	-5.20E-06	8.91E-06
30.	-5.50E-06	-3.33E-04	3.81E-04	-1.61E-04	2.62E-04	-5.20E-06	8.91E-06
45.	-8.25E-06	-4.99E-04	5.71E-04	-2.42E-04	3.93E-04	-5.20E-06	8.91E-06
65.	-1.19E-05	-7.21E-04	8.25E-04	-3.50E-04	5.67E-04	-5.20E-06	8.91E-06

Table M-58. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
5.	4.58	-5.31E-02	9.66	0.611	9.43	-0.794	0.969
15.	39.4	-5.35E-02	67.0	3.38	63.6	-2.40	1.62
30.	52.1	-1.22E-02	101.	2.62	75.4	-1.65	0.777
45.	79.5	6.17E-02	177.	6.86	142.	-1.61	1.38
65.	80.3	-1.26E+03	177.	-139.	136.	-3.37	0.862

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Table M-59. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.83	-8.50	-3.41E-02	3.07E-02
15.	-7.38	-8.84	-5.98	-8.81	-6.00	-9.55E-02	9.24E-02
30.	-5.09	-8.84	-2.55	-8.80	-2.58	-0.123	8.38E-02
45.	-2.39	-8.83	3.05	-8.72	2.91	-0.141	0.118
65.	1.77	-8.82	8.60	-8.50	8.50	-0.158	0.104

Table M-60. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-9.09E-03	-1.77E-02	-7.24E-04	-1.75E-02	-8.01E-04	-1.68E-03	1.66E-03
15.	-8.18E-02	-0.158	-6.85E-03	-0.157	-7.29E-03	-5.04E-03	4.97E-03
30.	-0.327	-0.632	-2.76E-02	-0.630	-2.92E-02	-1.01E-02	9.93E-03
45.	-0.736	-1.42	-6.16E-02	-1.42	-6.58E-02	-1.51E-02	1.49E-02
65.	-1.54	-2.97	-0.129	-2.96	-0.137	-2.18E-02	2.15E-02

Table M–61. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.15E-02	3.23E-02
15.	-38.2	-39.3	-37.4	-39.3	-37.5	-7.03E-02	5.26E-02
30.	-36.5	-39.8	-33.3	-39.8	-33.4	-0.109	0.105
45.	-33.6	-40.6	-27.1	-40.5	-27.1	-0.154	0.144
65.	-33.4	-42.2	-26.9	-42.0	-27.5	-0.133	9.03E-02

Table M–62. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-40.5	-37.8	-39.3	-38.4	-8.55E-02	9.16E-02
15.	-37.8	-45.9	-29.5	-45.1	-30.4	-0.485	0.498
30.	-35.0	-78.5	12.2	-75.3	7.20	-1.34	1.41
45.	-30.3	-144.	97.2	-134.	79.4	-2.30	2.44
65.	-20.1	-228.	227.	-202.	177.	-2.80	3.03

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Table M–63. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–64. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

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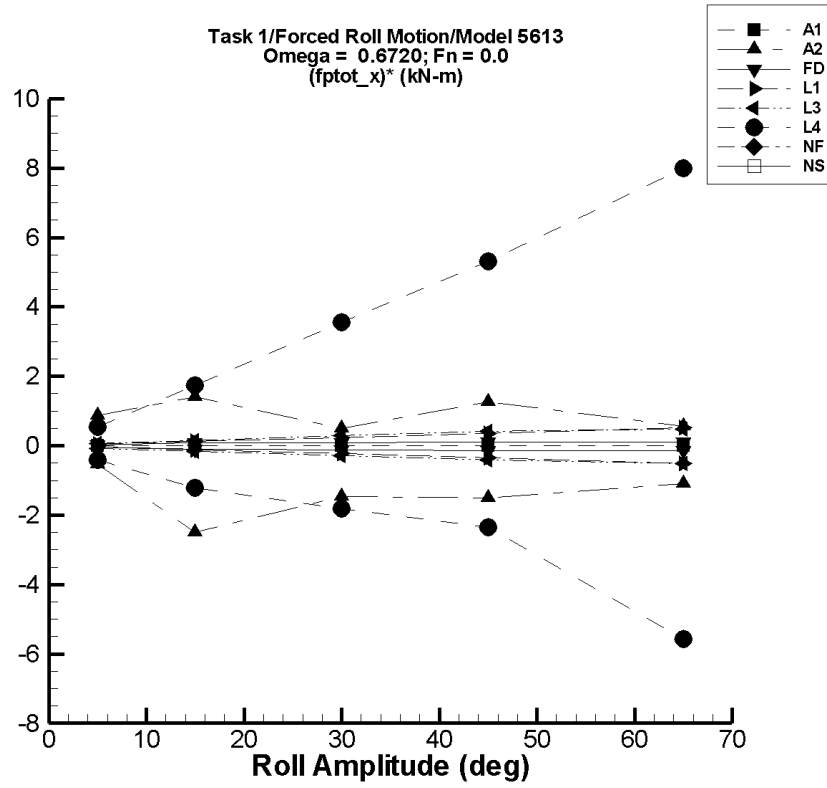


Figure M-9. Minimum and Maximum of  $(F_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M-65. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered $(F_x^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
5.	1.15E-06	-1.41E-04	1.73E-04	-1.35E-04	1.47E-04	-2.73E-05	2.91E-05
15.	3.44E-06	-4.22E-04	5.18E-04	-4.06E-04	4.39E-04	-2.73E-05	2.91E-05
30.	6.88E-06	-8.44E-04	1.04E-03	-8.12E-04	8.79E-04	-2.73E-05	2.91E-05
45.	1.03E-05	-1.27E-03	1.55E-03	-1.22E-03	1.32E-03	-2.73E-05	2.91E-05
65.	1.49E-05	-1.83E-03	2.24E-03	-1.76E-03	1.90E-03	-2.73E-05	2.91E-05

Table M-66. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered $(F_x^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
5.	4.48	-5.33E-02	9.65	1.77	8.87	-0.542	0.879
15.	39.9	1.46E-02	67.0	2.54	61.1	-2.49	1.41
30.	52.5	0.249	101.	8.35	67.4	-1.47	0.497
45.	80.1	-1.97E-02	177.	12.7	136.	-1.50	1.25
65.	87.4	-152.	177.	15.8	124.	-1.10	0.559

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Table M-67. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.66	-8.84	-8.50	-8.82	-8.50	-3.23E-02	3.07E-02
15.	-7.39	-8.84	-5.98	-8.79	-6.00	-9.32E-02	9.24E-02
30.	-5.11	-8.84	-2.55	-8.71	-2.58	-0.120	8.44E-02
45.	-2.39	-8.83	3.05	-8.45	2.72	-0.135	0.114
65.	1.70	-8.85	8.60	-8.04	8.51	-0.150	0.105

Table M-68. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.179	-0.377	1.89E-02	-0.374	1.66E-02	-3.89E-02	3.91E-02
15.	-1.61	-3.39	0.171	-3.36	0.151	-0.117	0.117
30.	-6.44	-13.6	0.683	-13.4	0.603	-0.234	0.235
45.	-14.5	-30.5	1.54	-30.3	1.35	-0.350	0.352
65.	-30.2	-63.7	3.20	-63.1	2.83	-0.506	0.509



Table M–69. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-39.1	-39.5	-38.8	-39.5	-38.8	-7.98E-02	6.21E-02
15.	-39.8	-42.1	-37.6	-42.1	-37.6	-0.156	0.144
30.	-42.6	-51.2	-33.9	-51.1	-34.2	-0.284	0.281
45.	-47.4	-66.6	-28.1	-66.3	-28.5	-0.420	0.419
65.	-62.1	-96.6	-31.0	-96.0	-31.5	-0.522	0.471

Table M–70. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.5	-41.9	-34.8	-40.6	-35.8	-0.410	0.537
15.	-34.5	-55.9	-7.20	-52.9	-8.35	-1.22	1.75
30.	-25.2	-96.7	100.	-79.3	81.1	-1.81	3.54
45.	-10.7	-140.	288.	-117.	228.	-2.35	5.30
65.	31.5	-468.	740.	-330.	551.	-5.57	7.99

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Table M–71. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–72. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

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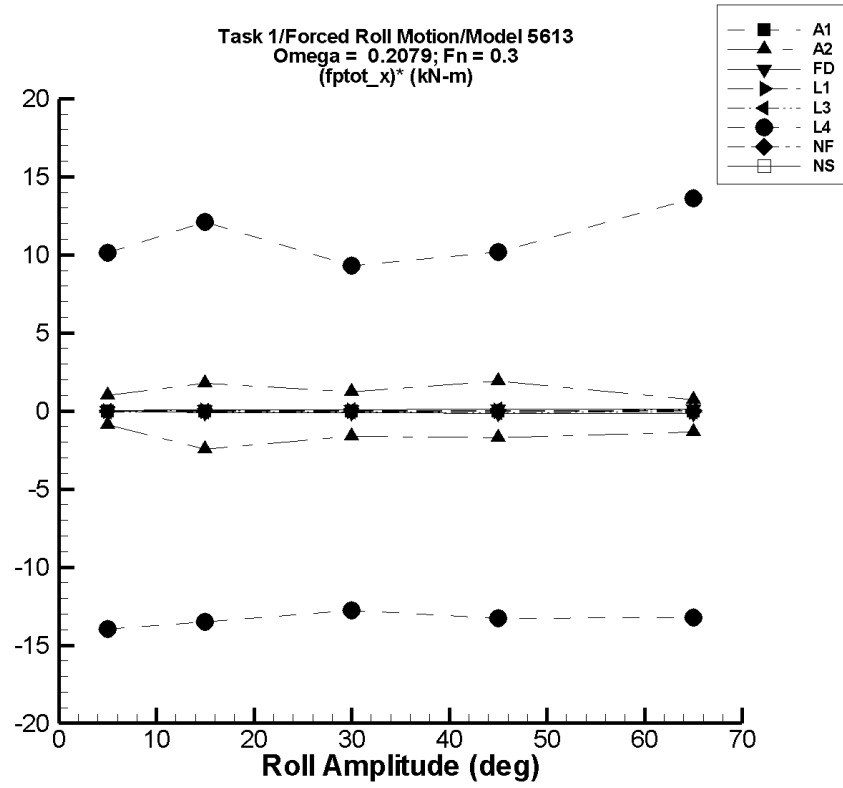


Figure M-10. Minimum and Maximum of  $(F_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-73. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
5.	-1.54E-07	-7.38E-04	7.40E-04	-7.37E-04	7.39E-04	-1.47E-04	1.48E-04
15.	-4.63E-07	-2.21E-03	2.22E-03	-2.21E-03	2.22E-03	-1.47E-04	1.48E-04
30.	-9.26E-07	-4.42E-03	4.44E-03	-4.42E-03	4.43E-03	-1.47E-04	1.48E-04
45.	-1.39E-06	-6.64E-03	6.66E-03	-6.63E-03	6.65E-03	-1.47E-04	1.48E-04
65.	-2.01E-06	-9.59E-03	9.62E-03	-9.58E-03	9.61E-03	-1.47E-04	1.48E-04

Table M-74. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{ptot}})^*$ Max. (kN/°)
5.	4.57	-5.22E-02	9.66	0.128	9.58	-0.888	1.00
15.	39.4	-3.83E-02	67.0	2.73	65.9	-2.45	1.76
30.	52.1	-5.75E-02	101.	3.14	88.9	-1.63	1.23
45.	79.5	-3.50E-02	177.	2.72	165.	-1.71	1.90
65.	88.7	-317.	177.	2.65	136.	-1.32	0.735

Table M-75. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.84	-8.50	-3.67E-02	3.08E-02
15.	-7.39	-8.84	-5.98	-8.82	-5.98	-9.54E-02	9.35E-02
30.	-5.10	-8.84	-2.55	-8.80	-2.56	-0.123	8.46E-02
45.	-2.40	-8.84	3.06	-8.80	3.02	-0.142	0.120
65.	1.74	-8.84	8.60	-8.82	8.56	-0.162	0.105

Table M-76. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.6	-41.7	-41.6	-41.6	-41.6	-3.65E-03	3.88E-03
15.	-41.5	-41.7	-41.3	-41.7	-41.4	-9.19E-03	9.13E-03
30.	-41.1	-41.7	-40.5	-41.7	-40.6	-1.82E-02	1.83E-02
45.	-40.4	-41.7	-39.2	-41.7	-39.2	-2.73E-02	2.74E-02
65.	-39.1	-41.7	-36.5	-41.7	-36.6	-3.95E-02	3.96E-02

Table M-77. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-80.6	-80.9	-80.4	-80.9	-80.4	-6.13E-02	3.82E-02
15.	-79.7	-80.6	-79.1	-80.6	-79.1	-6.13E-02	4.23E-02
30.	-77.3	-79.8	-75.0	-79.8	-75.0	-8.32E-02	7.80E-02
45.	-73.3	-78.5	-68.7	-78.4	-68.7	-0.113	0.103
65.	-70.8	-75.9	-65.5	-75.8	-65.7	-7.68E-02	7.93E-02

Table M-78. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-36.0	-304.	76.4	-106.	14.7	-14.0	10.1
15.	107.	-263.	379.	-95.3	289.	-13.5	12.1
30.	298.	-310.	730.	-85.8	577.	-12.8	9.31
45.	498.	-395.	1.06E+03	-101.	954.	-13.3	10.2
65.	828.	-413.	1.79E+03	-32.3	1.71E+03	-13.2	13.6

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Table M-79. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-80. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

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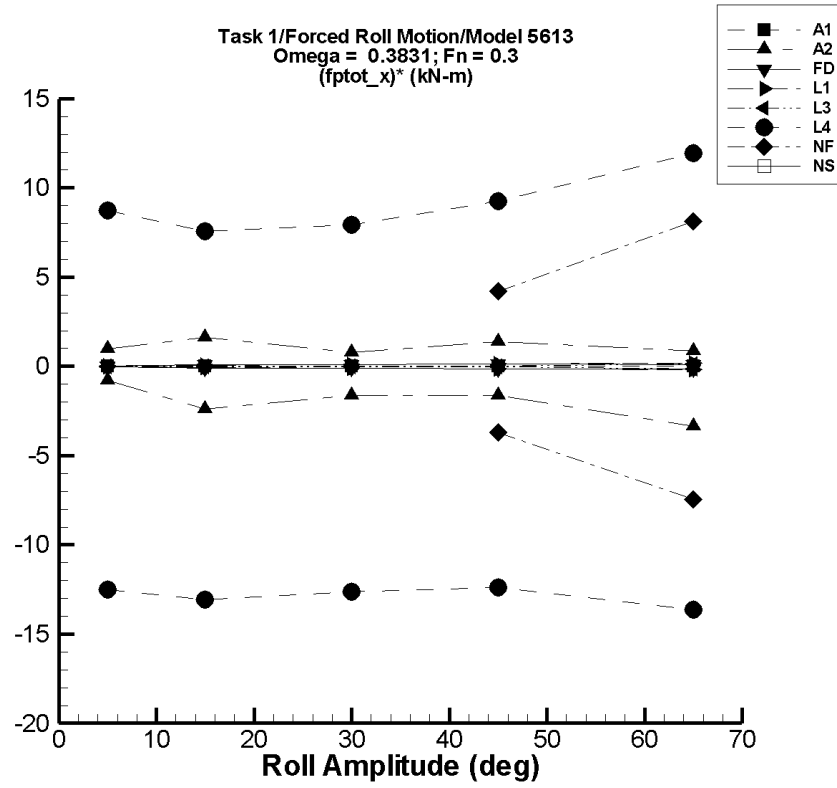


Figure M-11. Minimum and Maximum of  $(F_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.



Table M–81. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered $(F_x^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
5.	6.96E-07	-1.46E-03	1.47E-03	-1.45E-03	1.47E-03	-2.91E-04	2.95E-04
15.	2.09E-06	-4.38E-03	4.41E-03	-4.36E-03	4.42E-03	-2.91E-04	2.95E-04
30.	4.18E-06	-8.75E-03	8.83E-03	-8.72E-03	8.84E-03	-2.91E-04	2.95E-04
45.	6.26E-06	-1.31E-02	1.32E-02	-1.31E-02	1.33E-02	-2.91E-04	2.95E-04
65.	9.05E-06	-1.90E-02	1.91E-02	-1.89E-02	1.92E-02	-2.91E-04	2.95E-04

Table M–82. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered $(F_x^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.42E-02	9.66	0.610	9.43	-0.794	0.969
15.	39.4	-5.77E-02	67.0	3.39	63.6	-2.40	1.62
30.	52.1	-2.08E-02	101.	2.63	75.4	-1.65	0.777
45.	79.5	4.88E-02	177.	6.87	142.	-1.61	1.38
65.	80.3	-1.26E+03	177.	-139.	136.	-3.37	0.862

Table M–83. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.83	-8.50	-3.41E-02	3.07E-02
15.	-7.38	-8.84	-5.98	-8.81	-6.00	-9.55E-02	9.24E-02
30.	-5.09	-8.84	-2.55	-8.80	-2.58	-0.123	8.38E-02
45.	-2.39	-8.83	3.05	-8.72	2.91	-0.141	0.118
65.	1.77	-8.82	8.60	-8.50	8.50	-0.158	0.104

Table M–84. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.6	-41.7	-41.5	-41.7	-41.5	-1.53E-02	1.53E-02
15.	-41.0	-41.7	-40.3	-41.7	-40.3	-4.44E-02	4.45E-02
30.	-39.1	-41.8	-36.4	-41.8	-36.5	-8.85E-02	8.87E-02
45.	-36.0	-42.0	-29.9	-41.9	-30.0	-0.133	0.133
65.	-29.8	-42.3	-17.2	-42.2	-17.3	-0.192	0.192

Table M–85. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-80.5	-80.7	-80.4	-80.7	-80.4	-3.90E-02	2.77E-02
15.	-79.2	-79.6	-78.9	-79.6	-78.9	-2.52E-02	1.80E-02
30.	-75.3	-75.9	-74.6	-75.9	-74.6	-1.92E-02	2.17E-02
45.	-68.9	-70.3	-67.3	-70.2	-67.4	-3.02E-02	3.25E-02
65.	-61.6	-71.2	-53.3	-71.1	-53.7	-0.145	0.122

Table M–86. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-43.8	-135.	2.26	-106.	-0.169	-12.5	8.73
15.	91.3	-143.	214.	-105.	205.	-13.1	7.57
30.	297.	-97.7	540.	-82.7	534.	-12.6	7.91
45.	536.	-41.1	961.	-20.7	953.	-12.4	9.26
65.	965.	39.1	1.76E+03	78.5	1.74E+03	-13.6	11.9

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Table M–87. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-507.	-642.	-381.	-609.	-408.	-3.39	3.30
45.	-596.	-784.	-347.	-764.	-407.	-3.73	4.20
65.	-773.	-1.29E+03	-148.	-1.26E+03	-245.	-7.44	8.12

Table M–88. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

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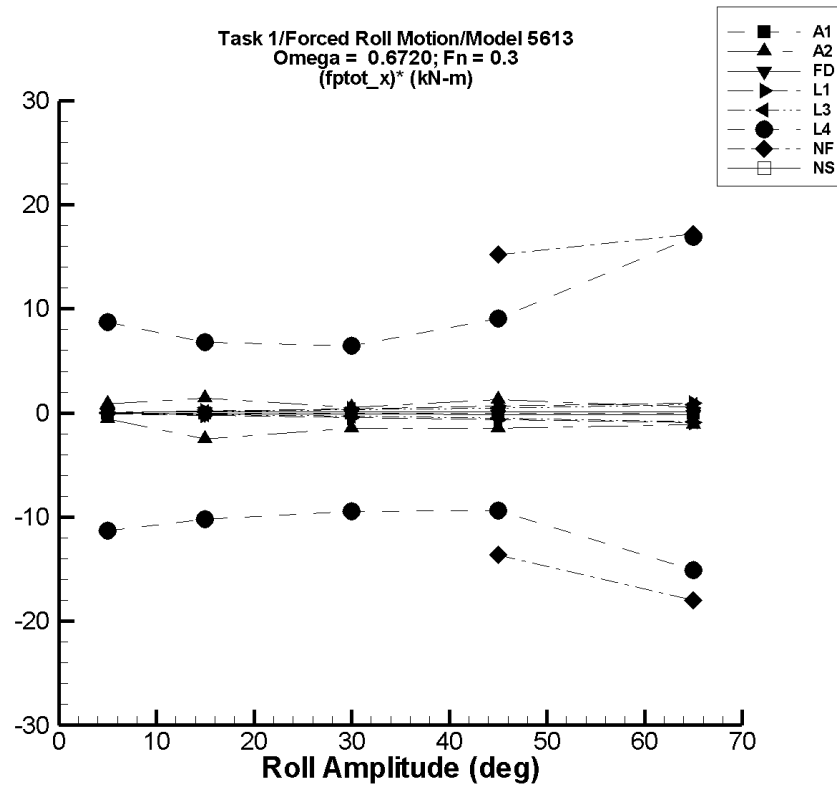


Figure M-12. Minimum and Maximum of  $(F_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–89. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered $(F_x^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
5.	-2.14E-07	-2.56E-03	2.50E-03	-2.38E-03	2.39E-03	-4.76E-04	4.78E-04
15.	-6.42E-07	-7.68E-03	7.49E-03	-7.13E-03	7.17E-03	-4.76E-04	4.78E-04
30.	-1.28E-06	-1.54E-02	1.50E-02	-1.43E-02	1.43E-02	-4.76E-04	4.78E-04
45.	-1.93E-06	-2.30E-02	2.25E-02	-2.14E-02	2.15E-02	-4.76E-04	4.78E-04
65.	-2.78E-06	-3.33E-02	3.25E-02	-3.09E-02	3.11E-02	-4.76E-04	4.78E-04

Table M–90. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{ptot}}$ Max. (kN)	Filtered $(F_x^{\text{ptot}})^*$ Min. (kN/°)	Max. (kN/°)
5.	4.48	-5.14E-02	9.65	1.77	8.87	-0.542	0.879
15.	39.9	2.17E-02	67.0	2.55	61.1	-2.49	1.41
30.	52.5	0.263	101.	8.37	67.4	-1.47	0.498
45.	80.1	-4.10E-02	177.	12.7	137.	-1.50	1.25
65.	87.4	-152.	177.	15.9	124.	-1.10	0.559

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Table M-91. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.66	-8.84	-8.50	-8.82	-8.50	-3.23E-02	3.07E-02
15.	-7.39	-8.84	-5.98	-8.79	-6.00	-9.32E-02	9.24E-02
30.	-5.11	-8.84	-2.55	-8.71	-2.58	-0.120	8.44E-02
45.	-2.39	-8.83	3.05	-8.45	2.72	-0.135	0.114
65.	1.70	-8.85	8.60	-8.04	8.51	-0.150	0.105

Table M-92. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.4	-41.8	-41.0	-41.8	-41.0	-7.05E-02	7.12E-02
15.	-39.4	-42.7	-36.2	-42.6	-36.3	-0.211	0.212
30.	-32.8	-45.7	-19.9	-45.5	-20.1	-0.423	0.423
45.	-21.7	-50.8	7.28	-50.2	6.84	-0.634	0.634
65.	-5.18E-02	-60.6	60.5	-59.6	59.5	-0.916	0.916

Table M-93. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-80.3	-80.5	-80.1	-80.5	-80.1	-4.41E-02	3.55E-02
15.	-77.6	-80.0	-75.4	-80.0	-75.4	-0.159	0.145
30.	-68.9	-78.5	-59.4	-78.4	-59.5	-0.316	0.315
45.	-54.6	-77.0	-32.8	-76.4	-32.9	-0.486	0.482
65.	-31.9	-87.6	19.1	-86.7	19.2	-0.843	0.785

Table M-94. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-44.2	-134.	3.71	-101.	-0.446	-11.3	8.75
15.	83.3	-92.4	194.	-70.3	185.	-10.2	6.76
30.	274.	-32.4	491.	-9.40	468.	-9.46	6.47
45.	497.	55.7	974.	76.2	905.	-9.35	9.06
65.	921.	-121.	2.07E+03	-62.5	2.02E+03	-15.1	16.9



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Table M-95. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-532.	-985.	-137.	-922.	-199.	-13.0	11.1
45.	-695.	-1.37E+03	156.	-1.31E+03	-10.3	-13.7	15.2
65.	-928.	-2.25E+03	436.	-2.10E+03	189.	-18.0	17.2

Table M-96. Minimum and Maximum of  $F_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{ptot}}$		Filtered $F_x^{\text{ptot}}$		Filtered $(F_x^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

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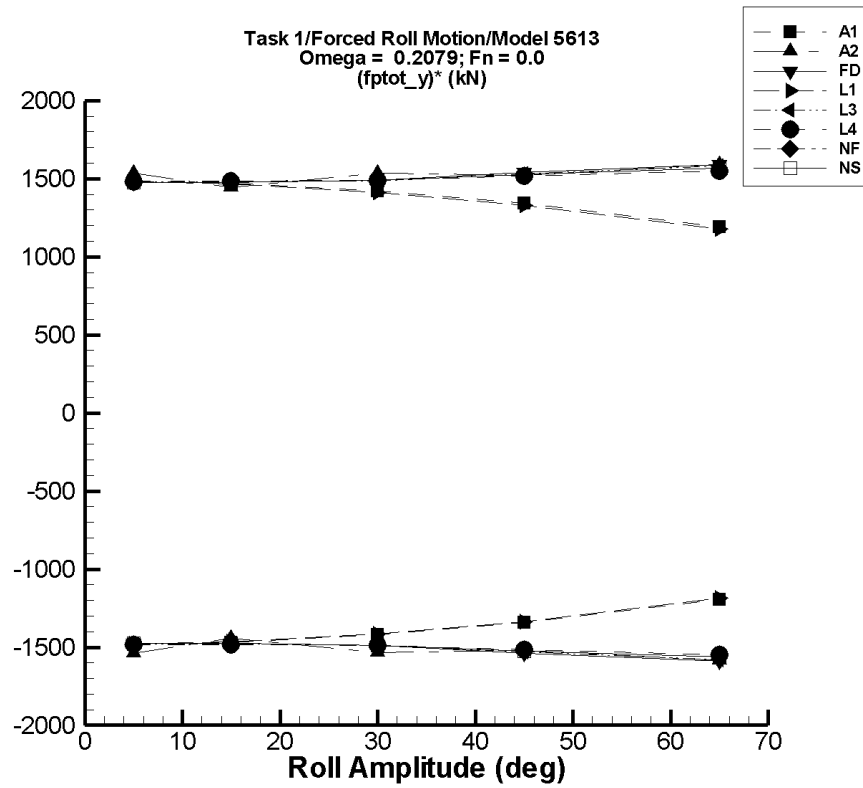


Figure M-13. Minimum and Maximum of  $(F_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M-97. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.110	-7.44E+03	7.44E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	1.74	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	12.9	-4.27E+04	4.27E+04	-4.26E+04	4.27E+04	-1.42E+03	1.42E+03
45.	42.2	-6.04E+04	6.04E+04	-6.03E+04	6.04E+04	-1.34E+03	1.34E+03
65.	122.	-7.76E+04	7.76E+04	-7.75E+04	7.77E+04	-1.19E+03	1.19E+03

Table M-98. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.65	-7.68E+03	7.68E+03	-7.68E+03	7.69E+03	-1.54E+03	1.54E+03
15.	12.5	-2.17E+04	2.17E+04	-2.16E+04	2.16E+04	-1.44E+03	1.44E+03
30.	-17.5	-4.61E+04	4.61E+04	-4.60E+04	4.61E+04	-1.53E+03	1.54E+03
45.	-18.7	-6.86E+04	6.86E+04	-6.85E+04	6.85E+04	-1.52E+03	1.52E+03
65.	-56.6	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-99. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.245	-7.39E+03	7.39E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	-0.221	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-3.11	-4.47E+04	4.47E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-23.8	-6.93E+04	6.93E+04	-6.93E+04	6.93E+04	-1.54E+03	1.54E+03
65.	-62.7	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-100. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.145	-7.40E+03	7.40E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	3.91	-2.20E+04	2.20E+04	-2.20E+04	2.20E+04	-1.47E+03	1.46E+03
30.	30.6	-4.25E+04	4.25E+04	-4.24E+04	4.24E+04	-1.42E+03	1.41E+03
45.	101.	-6.00E+04	6.00E+04	-6.00E+04	6.00E+04	-1.34E+03	1.33E+03
65.	293.	-7.68E+04	7.68E+04	-7.68E+04	7.68E+04	-1.19E+03	1.18E+03

Table M-101. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_y^{\text{ptot}}</math></b>		<b>Filtered <math>F_y^{\text{ptot}}</math></b>		<b>Filtered <math>(F_y^{\text{ptot}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	1.62E-02	-7.41E+03	7.41E+03	-7.41E+03	7.41E+03	-1.48E+03	1.48E+03
15.	0.197	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-3.55	-4.46E+04	4.46E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-43.0	-6.90E+04	6.90E+04	-6.89E+04	6.89E+04	-1.53E+03	1.53E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.58E+03	1.58E+03

Table M-102. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_y^{\text{ptot}}</math></b>		<b>Filtered <math>F_y^{\text{ptot}}</math></b>		<b>Filtered <math>(F_y^{\text{ptot}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	-8.04E-02	-7.42E+03	7.42E+03	-7.41E+03	7.41E+03	-1.48E+03	1.48E+03
15.	-9.74E-02	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-0.862	-4.46E+04	4.46E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-21.8	-6.84E+04	6.84E+04	-6.83E+04	6.83E+04	-1.52E+03	1.52E+03
65.	-67.6	-1.01E+05	1.01E+05	-1.01E+05	1.01E+05	-1.55E+03	1.55E+03

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Table M–103. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–104. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.21E-03	-7.45E+03	7.45E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	2.64E-02	-2.24E+04	2.24E+04	-2.21E+04	2.21E+04	-1.48E+03	1.48E+03
30.	0.248	-4.49E+04	4.49E+04	-4.47E+04	4.47E+04	-1.49E+03	1.49E+03
45.	0.776	-6.89E+04	6.89E+04	-6.87E+04	6.87E+04	-1.53E+03	1.53E+03
65.	46.3	-1.02E+05	1.02E+05	-1.02E+05	1.02E+05	-1.56E+03	1.57E+03

# TASK 1/ROLL MOTION/MODEL 5613

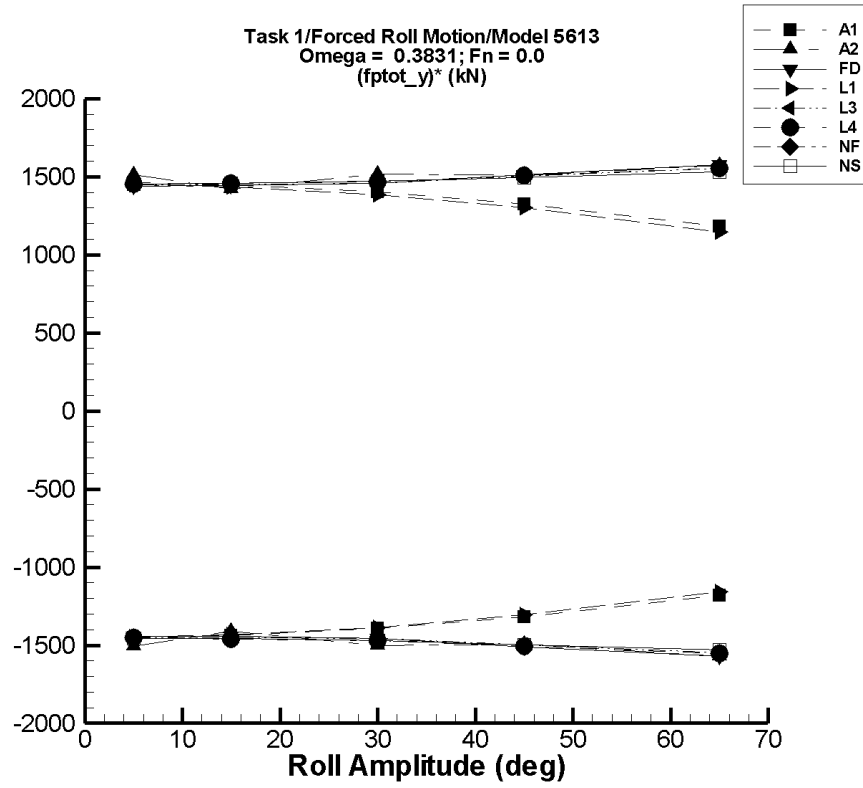


Figure M-14. Minimum and Maximum of  $(F_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M-105. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.268	-7.29E+03	7.30E+03	-7.26E+03	7.32E+03	-1.45E+03	1.46E+03
15.	1.88	-2.16E+04	2.17E+04	-2.16E+04	2.17E+04	-1.44E+03	1.45E+03
30.	11.0	-4.19E+04	4.20E+04	-4.18E+04	4.21E+04	-1.39E+03	1.40E+03
45.	34.1	-5.95E+04	5.95E+04	-5.93E+04	5.97E+04	-1.32E+03	1.33E+03
65.	97.0	-7.67E+04	7.68E+04	-7.66E+04	7.71E+04	-1.18E+03	1.18E+03

Table M-106. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.16	-7.54E+03	7.55E+03	-7.52E+03	7.57E+03	-1.51E+03	1.51E+03
15.	13.6	-2.12E+04	2.13E+04	-2.11E+04	2.13E+04	-1.41E+03	1.42E+03
30.	-14.5	-4.53E+04	4.53E+04	-4.51E+04	4.54E+04	-1.50E+03	1.52E+03
45.	-18.1	-6.76E+04	6.77E+04	-6.73E+04	6.78E+04	-1.49E+03	1.51E+03
65.	-104.	-1.02E+05	1.02E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03



Table M-107. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.222	-7.23E+03	7.23E+03	-7.21E+03	7.21E+03	-1.44E+03	1.44E+03
15.	-0.346	-2.17E+04	2.17E+04	-2.16E+04	2.16E+04	-1.44E+03	1.44E+03
30.	-4.36	-4.39E+04	4.39E+04	-4.37E+04	4.37E+04	-1.46E+03	1.46E+03
45.	-29.5	-6.83E+04	6.83E+04	-6.80E+04	6.80E+04	-1.51E+03	1.51E+03
65.	-61.4	-1.03E+05	1.03E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03

Table M-108. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.220	-7.26E+03	7.26E+03	-7.25E+03	7.25E+03	-1.45E+03	1.45E+03
15.	5.36	-2.15E+04	2.15E+04	-2.15E+04	2.15E+04	-1.43E+03	1.43E+03
30.	42.0	-4.16E+04	4.16E+04	-4.15E+04	4.15E+04	-1.39E+03	1.38E+03
45.	139.	-5.87E+04	5.87E+04	-5.86E+04	5.86E+04	-1.31E+03	1.30E+03
65.	401.	-7.49E+04	7.49E+04	-7.49E+04	7.49E+04	-1.16E+03	1.15E+03

Table M-109. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.47E-02	-7.26E+03	7.26E+03	-7.25E+03	7.25E+03	-1.45E+03	1.45E+03
15.	0.261	-2.18E+04	2.18E+04	-2.17E+04	2.17E+04	-1.45E+03	1.45E+03
30.	-5.50	-4.38E+04	4.38E+04	-4.37E+04	4.37E+04	-1.46E+03	1.46E+03
45.	-62.7	-6.76E+04	6.76E+04	-6.75E+04	6.75E+04	-1.50E+03	1.50E+03
65.	-147.	-1.01E+05	1.01E+05	-1.01E+05	1.01E+05	-1.55E+03	1.55E+03

Table M-110. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.697	-7.28E+03	7.28E+03	-7.27E+03	7.27E+03	-1.45E+03	1.45E+03
15.	4.51	-2.19E+04	2.19E+04	-2.19E+04	2.19E+04	-1.46E+03	1.46E+03
30.	5.12	-4.41E+04	4.41E+04	-4.41E+04	4.41E+04	-1.47E+03	1.47E+03
45.	-37.1	-6.80E+04	6.80E+04	-6.79E+04	6.79E+04	-1.51E+03	1.51E+03
65.	-80.8	-1.01E+05	1.01E+05	-1.01E+05	1.01E+05	-1.55E+03	1.55E+03

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Table M-111. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-112. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-4.18E-03	-7.35E+03	7.35E+03	-7.27E+03	7.27E+03	-1.45E+03	1.45E+03
15.	-4.55E-02	-2.21E+04	2.21E+04	-2.19E+04	2.19E+04	-1.46E+03	1.46E+03
30.	-0.344	-4.43E+04	4.43E+04	-4.41E+04	4.41E+04	-1.47E+03	1.47E+03
45.	-1.92	-6.74E+04	6.74E+04	-6.73E+04	6.73E+04	-1.50E+03	1.50E+03
65.	-28.1	-9.96E+04	9.95E+04	-9.95E+04	9.94E+04	-1.53E+03	1.53E+03

# TASK 1/ROLL MOTION/MODEL 5613

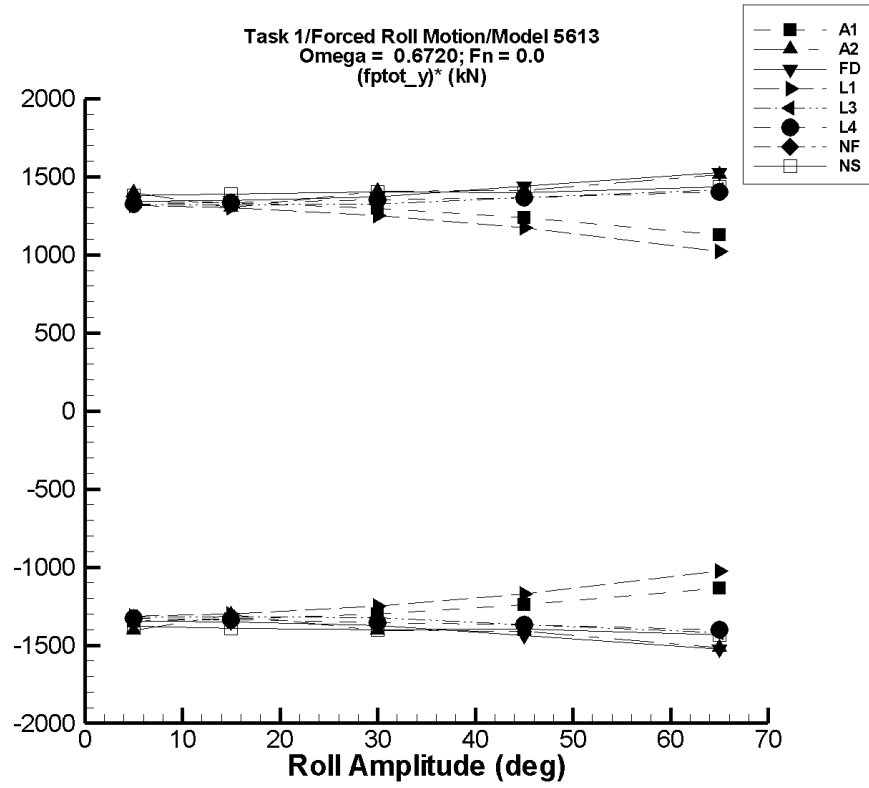


Figure M-15. Minimum and Maximum of  $(F_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M-113. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.19E-02	-6.80E+03	6.80E+03	-6.73E+03	6.73E+03	-1.35E+03	1.35E+03
15.	1.95	-2.02E+04	2.02E+04	-2.00E+04	2.00E+04	-1.33E+03	1.33E+03
30.	17.1	-3.94E+04	3.94E+04	-3.90E+04	3.90E+04	-1.30E+03	1.30E+03
45.	57.9	-5.64E+04	5.64E+04	-5.58E+04	5.58E+04	-1.24E+03	1.24E+03
65.	170.	-7.41E+04	7.41E+04	-7.35E+04	7.35E+04	-1.13E+03	1.13E+03

Table M-114. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	17.9	-7.07E+03	7.06E+03	-7.01E+03	7.01E+03	-1.41E+03	1.40E+03
15.	4.87	-1.98E+04	1.98E+04	-1.96E+04	1.96E+04	-1.30E+03	1.30E+03
30.	-52.1	-4.27E+04	4.27E+04	-4.22E+04	4.22E+04	-1.40E+03	1.41E+03
45.	-65.0	-6.45E+04	6.44E+04	-6.35E+04	6.34E+04	-1.41E+03	1.41E+03
65.	-0.850	-9.97E+04	9.97E+04	-9.86E+04	9.85E+04	-1.52E+03	1.52E+03

Table M-115. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.574	-6.80E+03	6.79E+03	-6.72E+03	6.72E+03	-1.34E+03	1.34E+03
15.	-1.31	-2.04E+04	2.04E+04	-2.02E+04	2.02E+04	-1.35E+03	1.35E+03
30.	-16.1	-4.16E+04	4.16E+04	-4.12E+04	4.11E+04	-1.37E+03	1.37E+03
45.	-91.3	-6.55E+04	6.55E+04	-6.48E+04	6.46E+04	-1.44E+03	1.44E+03
65.	-209.	-1.00E+05	1.00E+05	-9.95E+04	9.91E+04	-1.53E+03	1.53E+03

Table M-116. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.68E-02	-6.61E+03	6.61E+03	-6.58E+03	6.58E+03	-1.32E+03	1.32E+03
15.	0.193	-1.96E+04	1.96E+04	-1.95E+04	1.95E+04	-1.30E+03	1.30E+03
30.	-9.84E-02	-3.77E+04	3.77E+04	-3.75E+04	3.75E+04	-1.25E+03	1.25E+03
45.	-1.11	-5.29E+04	5.29E+04	-5.27E+04	5.27E+04	-1.17E+03	1.17E+03
65.	-2.97	-6.66E+04	6.66E+04	-6.65E+04	6.65E+04	-1.02E+03	1.02E+03

Table M–117. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.07E-02	-6.62E+03	6.62E+03	-6.59E+03	6.59E+03	-1.32E+03	1.32E+03
15.	0.300	-1.98E+04	1.98E+04	-1.98E+04	1.98E+04	-1.32E+03	1.32E+03
30.	1.53	-3.99E+04	3.99E+04	-3.97E+04	3.97E+04	-1.32E+03	1.32E+03
45.	8.35	-6.18E+04	6.19E+04	-6.16E+04	6.16E+04	-1.37E+03	1.37E+03
65.	-5.67	-9.25E+04	9.25E+04	-9.21E+04	9.22E+04	-1.42E+03	1.42E+03

Table M–118. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.72	-6.66E+03	6.67E+03	-6.63E+03	6.63E+03	-1.33E+03	1.33E+03
15.	26.5	-2.01E+04	2.01E+04	-2.01E+04	2.01E+04	-1.34E+03	1.34E+03
30.	67.6	-4.07E+04	4.07E+04	-4.06E+04	4.06E+04	-1.35E+03	1.35E+03
45.	136.	-6.16E+04	6.19E+04	-6.14E+04	6.15E+04	-1.37E+03	1.36E+03
65.	211.	-9.13E+04	9.23E+04	-9.10E+04	9.13E+04	-1.40E+03	1.40E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-119. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-120. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.255	-6.96E+03	6.96E+03	-6.89E+03	6.89E+03	-1.38E+03	1.38E+03
15.	0.593	-2.10E+04	2.10E+04	-2.08E+04	2.08E+04	-1.39E+03	1.39E+03
30.	2.82E-02	-4.22E+04	4.22E+04	-4.21E+04	4.21E+04	-1.40E+03	1.40E+03
45.	-4.60	-6.29E+04	6.29E+04	-6.28E+04	6.28E+04	-1.40E+03	1.40E+03
65.	-33.4	-9.34E+04	9.35E+04	-9.31E+04	9.31E+04	-1.43E+03	1.43E+03



# TASK 1/ROLL MOTION/MODEL 5613

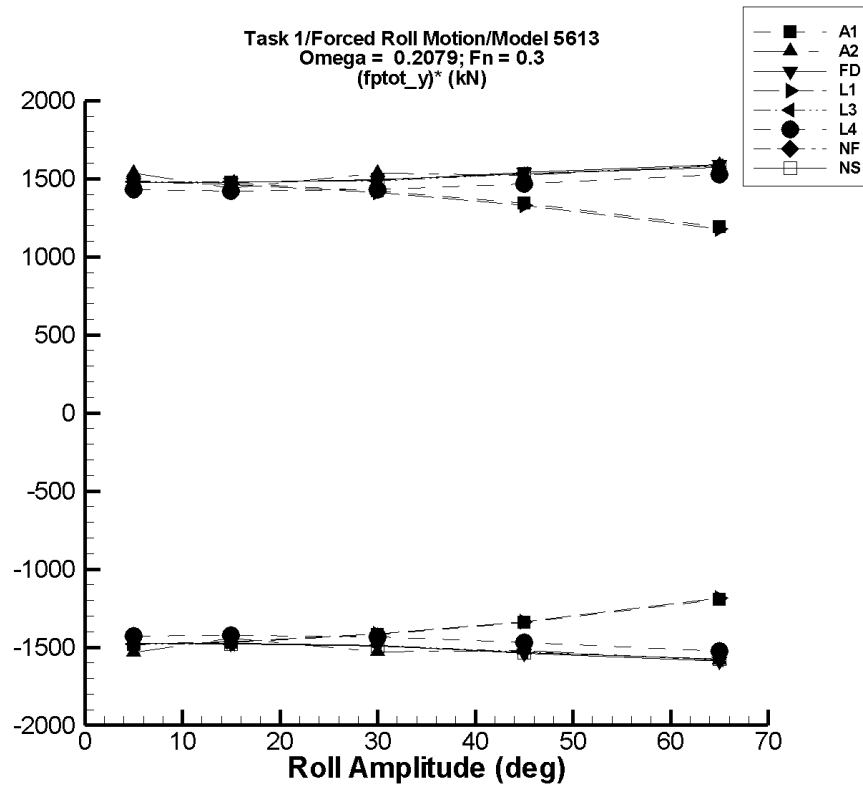


Figure M-16. Minimum and Maximum of  $(F_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-121. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.82E-02	-7.42E+03	7.42E+03	-7.42E+03	7.43E+03	-1.48E+03	1.49E+03
15.	1.68	-2.20E+04	2.20E+04	-2.20E+04	2.21E+04	-1.47E+03	1.47E+03
30.	12.6	-4.26E+04	4.26E+04	-4.26E+04	4.26E+04	-1.42E+03	1.42E+03
45.	41.2	-6.03E+04	6.03E+04	-6.03E+04	6.04E+04	-1.34E+03	1.34E+03
65.	119.	-7.75E+04	7.75E+04	-7.74E+04	7.76E+04	-1.19E+03	1.19E+03

Table M-122. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	10.0	-7.67E+03	7.67E+03	-7.67E+03	7.68E+03	-1.54E+03	1.53E+03
15.	12.4	-2.16E+04	2.16E+04	-2.16E+04	2.16E+04	-1.44E+03	1.44E+03
30.	-17.8	-4.60E+04	4.60E+04	-4.59E+04	4.60E+04	-1.53E+03	1.53E+03
45.	-19.7	-6.85E+04	6.85E+04	-6.84E+04	6.85E+04	-1.52E+03	1.52E+03
65.	-59.2	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-123. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.245	-7.39E+03	7.39E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	-0.222	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-3.11	-4.47E+04	4.47E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-23.8	-6.93E+04	6.93E+04	-6.93E+04	6.93E+04	-1.54E+03	1.54E+03
65.	-62.7	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-124. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.220	-7.40E+03	7.40E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	3.98	-2.20E+04	2.20E+04	-2.20E+04	2.20E+04	-1.46E+03	1.46E+03
30.	30.7	-4.24E+04	4.24E+04	-4.24E+04	4.24E+04	-1.42E+03	1.41E+03
45.	101.	-6.00E+04	6.00E+04	-6.00E+04	6.00E+04	-1.33E+03	1.33E+03
65.	293.	-7.68E+04	7.68E+04	-7.68E+04	7.68E+04	-1.19E+03	1.18E+03

Table M-125. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.06E-02	-7.41E+03	7.41E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	0.274	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-3.45	-4.46E+04	4.46E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-42.9	-6.89E+04	6.89E+04	-6.89E+04	6.89E+04	-1.53E+03	1.53E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.58E+03	1.58E+03

Table M-126. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.42	-7.14E+03	7.21E+03	-7.14E+03	7.14E+03	-1.43E+03	1.43E+03
15.	13.1	-2.14E+04	2.14E+04	-2.14E+04	2.14E+04	-1.42E+03	1.42E+03
30.	23.4	-4.35E+04	4.30E+04	-4.30E+04	4.30E+04	-1.43E+03	1.43E+03
45.	-5.28	-6.61E+04	6.62E+04	-6.61E+04	6.61E+04	-1.47E+03	1.47E+03
65.	-105.	-9.92E+04	9.92E+04	-9.91E+04	9.92E+04	-1.52E+03	1.53E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-127. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-128. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.13E-03	-7.45E+03	7.45E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	-4.11E-02	-2.24E+04	2.24E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-5.25E-02	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	-0.147	-6.91E+04	6.91E+04	-6.90E+04	6.90E+04	-1.53E+03	1.53E+03
65.	-15.7	-1.02E+05	1.02E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03

# TASK 1/ROLL MOTION/MODEL 5613

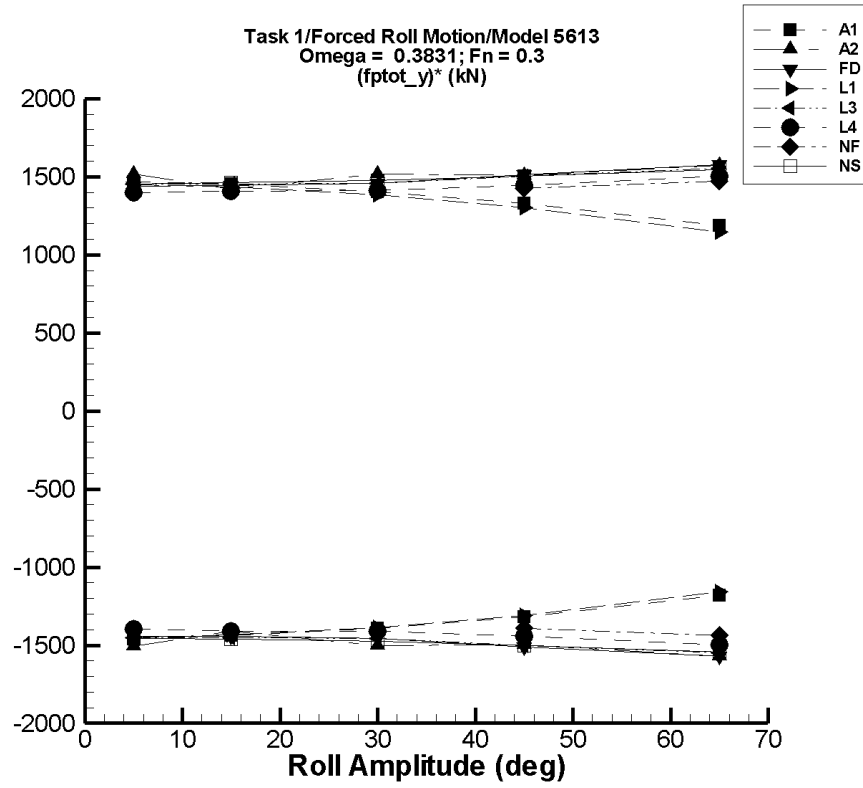


Figure M–17. Minimum and Maximum of  $(F_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–129. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.280	-7.30E+03	7.31E+03	-7.27E+03	7.33E+03	-1.45E+03	1.47E+03
15.	1.86	-2.17E+04	2.17E+04	-2.16E+04	2.18E+04	-1.44E+03	1.45E+03
30.	10.6	-4.19E+04	4.20E+04	-4.18E+04	4.21E+04	-1.39E+03	1.40E+03
45.	32.6	-5.95E+04	5.96E+04	-5.93E+04	5.98E+04	-1.32E+03	1.33E+03
65.	92.4	-7.68E+04	7.68E+04	-7.66E+04	7.71E+04	-1.18E+03	1.19E+03

Table M–130. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.17	-7.55E+03	7.56E+03	-7.53E+03	7.59E+03	-1.51E+03	1.52E+03
15.	13.6	-2.12E+04	2.13E+04	-2.12E+04	2.13E+04	-1.41E+03	1.42E+03
30.	-14.9	-4.53E+04	4.54E+04	-4.51E+04	4.55E+04	-1.50E+03	1.52E+03
45.	-19.6	-6.77E+04	6.77E+04	-6.73E+04	6.78E+04	-1.50E+03	1.51E+03
65.	-107.	-1.03E+05	1.03E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03

Table M–131. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.222	-7.23E+03	7.23E+03	-7.21E+03	7.21E+03	-1.44E+03	1.44E+03
15.	-0.345	-2.17E+04	2.17E+04	-2.16E+04	2.16E+04	-1.44E+03	1.44E+03
30.	-4.36	-4.39E+04	4.39E+04	-4.37E+04	4.37E+04	-1.46E+03	1.46E+03
45.	-29.5	-6.83E+04	6.83E+04	-6.80E+04	6.80E+04	-1.51E+03	1.51E+03
65.	-61.4	-1.03E+05	1.03E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03

Table M–132. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.294	-7.26E+03	7.26E+03	-7.25E+03	7.25E+03	-1.45E+03	1.45E+03
15.	5.45	-2.16E+04	2.16E+04	-2.15E+04	2.15E+04	-1.44E+03	1.43E+03
30.	42.1	-4.16E+04	4.16E+04	-4.16E+04	4.16E+04	-1.39E+03	1.38E+03
45.	139.	-5.87E+04	5.87E+04	-5.87E+04	5.87E+04	-1.31E+03	1.30E+03
65.	401.	-7.50E+04	7.50E+04	-7.50E+04	7.50E+04	-1.16E+03	1.15E+03



Table M-133. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$	$\langle F_y^{\text{ptot}} \rangle$	<b>Unfiltered <math>F_y^{\text{ptot}}</math></b>		<b>Filtered <math>F_y^{\text{ptot}}</math></b>		<b>Filtered <math>(F_y^{\text{ptot}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN)</b>	<b>(kN)</b>	<b>(kN)</b>	<b>(kN)</b>	<b>(kN)</b>	<b>(kN/°)</b>	<b>(kN/°)</b>
5.	0.120	-7.27E+03	7.27E+03	-7.26E+03	7.26E+03	-1.45E+03	1.45E+03
15.	0.352	-2.18E+04	2.18E+04	-2.18E+04	2.18E+04	-1.45E+03	1.45E+03
30.	-5.38	-4.38E+04	4.38E+04	-4.37E+04	4.37E+04	-1.46E+03	1.46E+03
45.	-62.6	-6.77E+04	6.77E+04	-6.76E+04	6.76E+04	-1.50E+03	1.50E+03
65.	-147.	-1.01E+05	1.01E+05	-1.01E+05	1.01E+05	-1.55E+03	1.55E+03

Table M-134. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$	$\langle F_y^{\text{ptot}} \rangle$	<b>Unfiltered <math>F_y^{\text{ptot}}</math></b>		<b>Filtered <math>F_y^{\text{ptot}}</math></b>		<b>Filtered <math>(F_y^{\text{ptot}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN)</b>	<b>(kN)</b>	<b>(kN)</b>	<b>(kN)</b>	<b>(kN)</b>	<b>(kN/°)</b>	<b>(kN/°)</b>
5.	-5.04	-7.00E+03	7.00E+03	-6.99E+03	6.99E+03	-1.40E+03	1.40E+03
15.	-5.83	-2.12E+04	2.12E+04	-2.11E+04	2.11E+04	-1.41E+03	1.41E+03
30.	-14.2	-4.25E+04	4.24E+04	-4.24E+04	4.24E+04	-1.41E+03	1.41E+03
45.	-58.5	-6.50E+04	6.50E+04	-6.49E+04	6.49E+04	-1.44E+03	1.44E+03
65.	-156.	-9.77E+04	9.77E+04	-9.75E+04	9.75E+04	-1.50E+03	1.50E+03

Table M-135. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-179.	-4.12E+04	4.18E+04	-4.09E+04	4.15E+04	-1.36E+03	1.39E+03
45.	-286.	-6.34E+04	6.44E+04	-6.30E+04	6.39E+04	-1.39E+03	1.43E+03
65.	-438.	-9.44E+04	9.58E+04	-9.38E+04	9.51E+04	-1.44E+03	1.47E+03

Table M-136. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.43E-02	-7.35E+03	7.35E+03	-7.28E+03	7.28E+03	-1.46E+03	1.46E+03
15.	-0.466	-2.21E+04	2.21E+04	-2.19E+04	2.19E+04	-1.46E+03	1.46E+03
30.	-2.29	-4.45E+04	4.44E+04	-4.43E+04	4.43E+04	-1.48E+03	1.48E+03
45.	-6.85	-6.78E+04	6.78E+04	-6.77E+04	6.77E+04	-1.50E+03	1.50E+03
65.	-34.9	-1.01E+05	1.00E+05	-1.00E+05	1.00E+05	-1.54E+03	1.54E+03

# TASK 1/ROLL MOTION/MODEL 5613

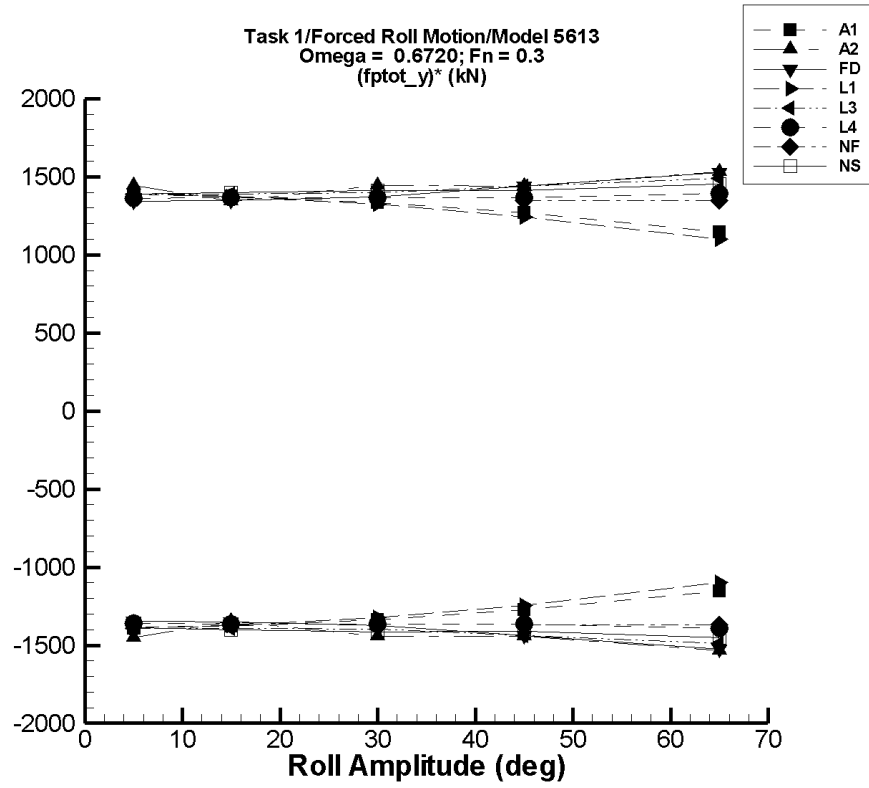


Figure M-18. Minimum and Maximum of  $(F_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M-137. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.899	-7.03E+03	7.02E+03	-6.95E+03	6.94E+03	-1.39E+03	1.39E+03
15.	4.88	-2.09E+04	2.09E+04	-2.07E+04	2.06E+04	-1.38E+03	1.38E+03
30.	24.3	-4.05E+04	4.05E+04	-4.01E+04	4.01E+04	-1.34E+03	1.34E+03
45.	71.9	-5.78E+04	5.77E+04	-5.72E+04	5.72E+04	-1.27E+03	1.27E+03
65.	198.	-7.53E+04	7.53E+04	-7.48E+04	7.48E+04	-1.15E+03	1.15E+03

Table M-138. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	18.8	-7.30E+03	7.29E+03	-7.23E+03	7.23E+03	-1.45E+03	1.44E+03
15.	7.80	-2.04E+04	2.04E+04	-2.02E+04	2.02E+04	-1.35E+03	1.35E+03
30.	-44.8	-4.39E+04	4.39E+04	-4.33E+04	4.33E+04	-1.44E+03	1.44E+03
45.	-51.0	-6.59E+04	6.58E+04	-6.49E+04	6.48E+04	-1.44E+03	1.44E+03
65.	27.1	-1.01E+05	1.01E+05	-9.98E+04	9.97E+04	-1.54E+03	1.53E+03

Table M-139. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.575	-6.80E+03	6.79E+03	-6.72E+03	6.72E+03	-1.34E+03	1.34E+03
15.	-1.31	-2.04E+04	2.04E+04	-2.02E+04	2.02E+04	-1.35E+03	1.35E+03
30.	-16.1	-4.16E+04	4.16E+04	-4.12E+04	4.11E+04	-1.37E+03	1.37E+03
45.	-91.3	-6.55E+04	6.55E+04	-6.48E+04	6.46E+04	-1.44E+03	1.44E+03
65.	-209.	-1.00E+05	1.00E+05	-9.95E+04	9.91E+04	-1.53E+03	1.53E+03

Table M-140. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.172	-6.96E+03	6.96E+03	-6.94E+03	6.94E+03	-1.39E+03	1.39E+03
15.	0.322	-2.07E+04	2.07E+04	-2.06E+04	2.06E+04	-1.37E+03	1.37E+03
30.	8.47E-02	-3.98E+04	3.98E+04	-3.97E+04	3.97E+04	-1.32E+03	1.32E+03
45.	-0.859	-5.62E+04	5.62E+04	-5.60E+04	5.60E+04	-1.24E+03	1.24E+03
65.	-2.63	-7.16E+04	7.16E+04	-7.14E+04	7.14E+04	-1.10E+03	1.10E+03

Table M-141. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.174	-6.98E+03	6.98E+03	-6.95E+03	6.95E+03	-1.39E+03	1.39E+03
15.	0.422	-2.09E+04	2.09E+04	-2.09E+04	2.09E+04	-1.39E+03	1.39E+03
30.	1.70	-4.21E+04	4.21E+04	-4.19E+04	4.19E+04	-1.40E+03	1.40E+03
45.	8.57	-6.51E+04	6.51E+04	-6.48E+04	6.48E+04	-1.44E+03	1.44E+03
65.	-5.37	-9.72E+04	9.72E+04	-9.69E+04	9.69E+04	-1.49E+03	1.49E+03

Table M-142. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.77	-6.84E+03	6.84E+03	-6.80E+03	6.80E+03	-1.36E+03	1.36E+03
15.	-1.23	-2.06E+04	2.06E+04	-2.05E+04	2.05E+04	-1.37E+03	1.37E+03
30.	-4.86	-4.10E+04	4.10E+04	-4.09E+04	4.09E+04	-1.36E+03	1.36E+03
45.	-34.7	-6.16E+04	6.16E+04	-6.14E+04	6.14E+04	-1.36E+03	1.37E+03
65.	-135.	-9.07E+04	9.07E+04	-9.06E+04	9.06E+04	-1.39E+03	1.40E+03

Table M-143. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	57.5	-4.07E+04	4.01E+04	-4.05E+04	4.00E+04	-1.35E+03	1.33E+03
45.	196.	-6.17E+04	6.11E+04	-6.13E+04	6.07E+04	-1.37E+03	1.35E+03
65.	412.	-8.91E+04	8.82E+04	-8.86E+04	8.79E+04	-1.37E+03	1.35E+03

Table M-144. Minimum and Maximum of  $F_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{ptot}}$		Filtered $F_y^{\text{ptot}}$		Filtered $(F_y^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.228	-7.01E+03	7.02E+03	-6.94E+03	6.94E+03	-1.39E+03	1.39E+03
15.	0.240	-2.12E+04	2.12E+04	-2.10E+04	2.10E+04	-1.40E+03	1.40E+03
30.	-1.59	-4.26E+04	4.26E+04	-4.24E+04	4.24E+04	-1.41E+03	1.41E+03
45.	-8.25	-6.36E+04	6.36E+04	-6.35E+04	6.35E+04	-1.41E+03	1.41E+03
65.	-35.9	-9.48E+04	9.48E+04	-9.45E+04	9.44E+04	-1.45E+03	1.45E+03

# TASK 1/ROLL MOTION/MODEL 5613

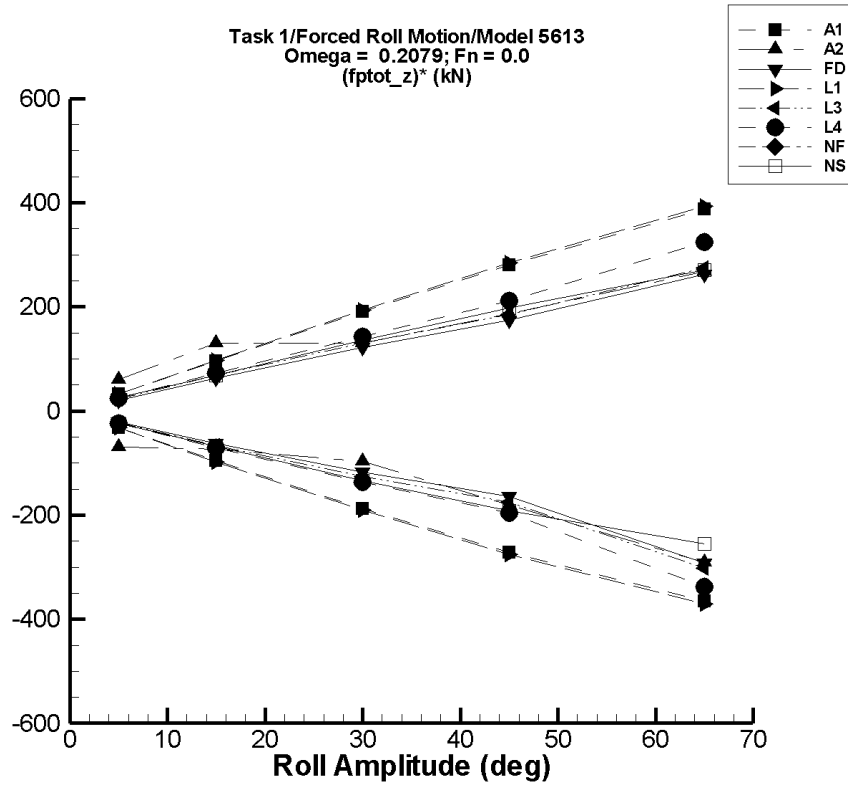


Figure M-19. Minimum and Maximum of  $(F_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.



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Table M-145. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.1	32.3
15.	8.45E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-95.6	96.5
30.	8.02E+04	7.46E+04	8.59E+04	7.46E+04	8.59E+04	-187.	191.
45.	7.33E+04	6.11E+04	8.59E+04	6.11E+04	8.59E+04	-271.	280.
65.	6.07E+04	3.69E+04	8.59E+04	3.70E+04	8.59E+04	-365.	388.

Table M-146. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-69.7	60.1
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-73.7	131.
30.	8.20E+04	7.91E+04	8.59E+04	7.91E+04	8.59E+04	-96.2	130.
45.	7.75E+04	6.94E+04	8.59E+04	6.94E+04	8.59E+04	-181.	187.
65.	6.84E+04	4.94E+04	8.59E+04	4.95E+04	8.59E+04	-291.	268.

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Table M-147. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-20.7	20.1
15.	8.43E+04	8.34E+04	8.53E+04	8.34E+04	8.53E+04	-62.1	62.5
30.	8.16E+04	7.81E+04	8.53E+04	7.81E+04	8.53E+04	-117.	122.
45.	7.75E+04	7.00E+04	8.53E+04	7.01E+04	8.53E+04	-164.	174.
65.	6.82E+04	4.91E+04	8.53E+04	4.92E+04	8.53E+04	-293.	263.

Table M-148. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.7	32.8
15.	8.41E+04	8.26E+04	8.56E+04	8.26E+04	8.56E+04	-97.6	97.9
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-191.	193.
45.	7.29E+04	6.05E+04	8.57E+04	6.05E+04	8.57E+04	-276.	284.
65.	6.03E+04	3.61E+04	8.59E+04	3.62E+04	8.59E+04	-371.	393.

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Table M-149. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-23.0	23.1
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-67.2	67.7
30.	8.17E+04	7.79E+04	8.56E+04	7.79E+04	8.56E+04	-126.	131.
45.	7.73E+04	6.94E+04	8.57E+04	6.94E+04	8.57E+04	-175.	186.
65.	6.80E+04	4.83E+04	8.59E+04	4.83E+04	8.58E+04	-302.	275.

Table M-150. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-23.8	24.8
15.	8.45E+04	8.35E+04	8.56E+04	8.35E+04	8.56E+04	-71.0	72.2
30.	8.17E+04	7.76E+04	8.61E+04	7.76E+04	8.60E+04	-137.	143.
45.	7.74E+04	6.85E+04	8.70E+04	6.86E+04	8.69E+04	-196.	212.
65.	6.83E+04	4.63E+04	8.96E+04	4.63E+04	8.94E+04	-338.	325.

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Table M–151. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–152. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-24.3	25.1
15.	8.49E+04	8.38E+04	8.60E+04	8.39E+04	8.59E+04	-67.6	68.6
30.	8.21E+04	7.80E+04	8.63E+04	7.81E+04	8.62E+04	-134.	136.
45.	7.79E+04	6.92E+04	8.74E+04	6.92E+04	8.67E+04	-192.	197.
65.	7.03E+04	5.36E+04	8.93E+04	5.37E+04	8.79E+04	-255.	270.

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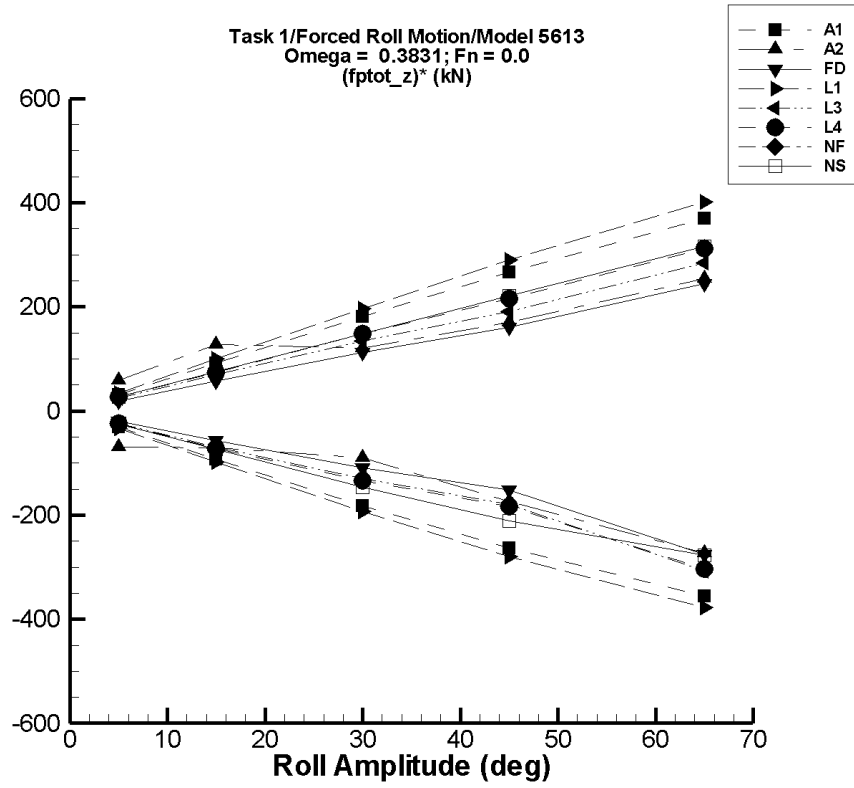


Figure M-20. Minimum and Maximum of  $(F_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

TASK 1/ROLL MOTION/MODEL 5613

Table M–153. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-31.1	30.8
15.	8.45E+04	8.31E+04	8.59E+04	8.31E+04	8.59E+04	-92.7	92.0
30.	8.04E+04	7.50E+04	8.59E+04	7.50E+04	8.59E+04	-182.	182.
45.	7.38E+04	6.20E+04	8.59E+04	6.19E+04	8.58E+04	-263.	267.
65.	6.16E+04	3.86E+04	8.59E+04	3.85E+04	8.57E+04	-356.	370.

Table M–154. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-68.8	58.3
15.	8.40E+04	8.29E+04	8.59E+04	8.29E+04	8.59E+04	-70.8	127.
30.	8.22E+04	7.95E+04	8.59E+04	7.95E+04	8.58E+04	-90.2	120.
45.	7.80E+04	7.02E+04	8.59E+04	7.02E+04	8.57E+04	-174.	171.
65.	6.91E+04	4.33E+04	8.59E+04	5.14E+04	8.56E+04	-273.	254.

TASK 1/ROLL MOTION/MODEL 5613

Table M–155. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-19.2	18.6
15.	8.44E+04	8.35E+04	8.53E+04	8.35E+04	8.53E+04	-57.4	57.7
30.	8.18E+04	7.85E+04	8.53E+04	7.86E+04	8.52E+04	-109.	113.
45.	7.80E+04	7.10E+04	8.53E+04	7.11E+04	8.52E+04	-152.	160.
65.	6.92E+04	5.09E+04	8.53E+04	5.13E+04	8.51E+04	-276.	244.

Table M–156. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-33.2	33.4
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-98.8	99.8
30.	7.99E+04	7.41E+04	8.58E+04	7.41E+04	8.58E+04	-194.	197.
45.	7.32E+04	6.05E+04	8.62E+04	6.06E+04	8.62E+04	-280.	289.
65.	6.08E+04	3.61E+04	8.69E+04	3.63E+04	8.69E+04	-378.	401.

TASK 1/ROLL MOTION/MODEL 5613

Table M–157. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-23.5	23.8
15.	8.45E+04	8.35E+04	8.56E+04	8.35E+04	8.56E+04	-68.6	69.6
30.	8.18E+04	7.79E+04	8.58E+04	7.79E+04	8.58E+04	-129.	135.
45.	7.76E+04	6.94E+04	8.61E+04	6.95E+04	8.61E+04	-179.	191.
65.	6.84E+04	4.83E+04	8.68E+04	4.84E+04	8.68E+04	-307.	284.

Table M–158. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-24.5	27.5
15.	8.46E+04	8.35E+04	8.58E+04	8.35E+04	8.57E+04	-72.3	73.6
30.	8.18E+04	7.77E+04	8.64E+04	7.77E+04	8.62E+04	-135.	148.
45.	7.75E+04	6.92E+04	8.75E+04	6.92E+04	8.72E+04	-184.	216.
65.	6.81E+04	4.82E+04	8.89E+04	4.84E+04	8.83E+04	-303.	311.



# TASK 1/ROLL MOTION/MODEL 5613

Table M–159. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–160. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-25.8	27.5
15.	8.49E+04	8.38E+04	8.61E+04	8.38E+04	8.61E+04	-73.1	74.7
30.	8.22E+04	7.77E+04	8.69E+04	7.78E+04	8.67E+04	-146.	149.
45.	7.81E+04	6.85E+04	8.95E+04	6.86E+04	8.80E+04	-211.	221.
65.	7.07E+04	5.27E+04	9.41E+04	5.28E+04	9.13E+04	-277.	316.

# TASK 1/ROLL MOTION/MODEL 5613

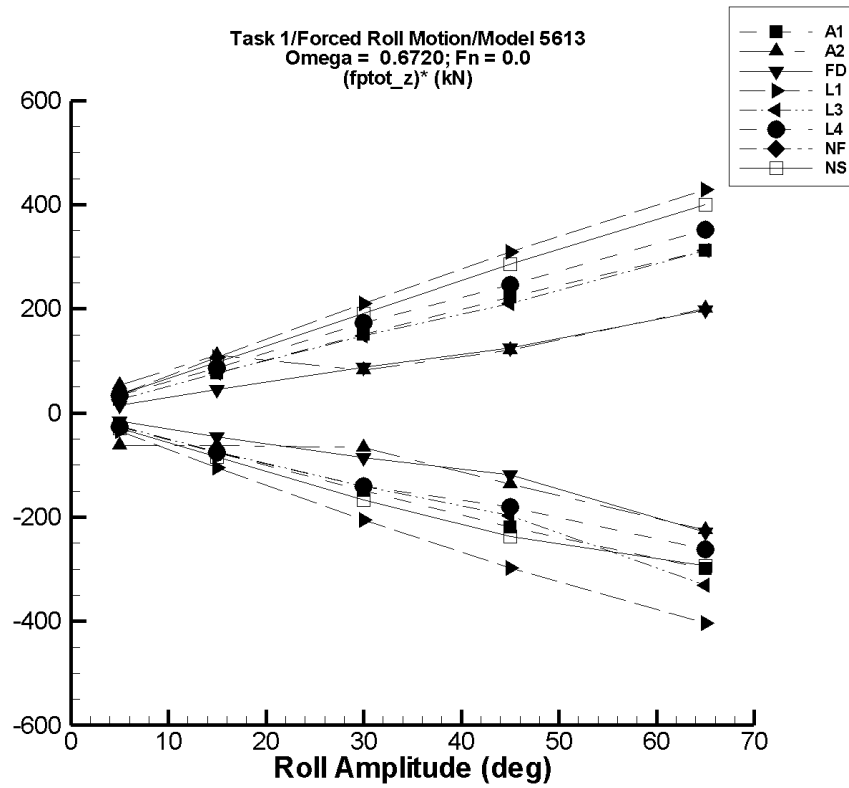


Figure M-21. Minimum and Maximum of  $(F_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

TASK 1/ROLL MOTION/MODEL 5613

Table M-161. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-25.5	25.6
15.	8.47E+04	8.35E+04	8.59E+04	8.36E+04	8.59E+04	-76.1	76.4
30.	8.12E+04	7.65E+04	8.59E+04	7.67E+04	8.57E+04	-150.	151.
45.	7.54E+04	6.51E+04	8.59E+04	6.56E+04	8.54E+04	-219.	223.
65.	6.47E+04	4.44E+04	8.60E+04	4.53E+04	8.50E+04	-299.	311.

Table M-162. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-62.2	53.7
15.	8.42E+04	8.31E+04	8.59E+04	8.32E+04	8.58E+04	-62.8	111.
30.	8.30E+04	8.09E+04	8.59E+04	8.10E+04	8.55E+04	-65.9	82.6
45.	7.96E+04	7.28E+04	8.59E+04	7.34E+04	8.51E+04	-137.	121.
65.	7.24E+04	5.68E+04	8.61E+04	5.77E+04	8.54E+04	-225.	200.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-163. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-15.0	14.7
15.	8.46E+04	8.38E+04	8.53E+04	8.39E+04	8.52E+04	-45.3	45.4
30.	8.25E+04	7.98E+04	8.53E+04	8.00E+04	8.52E+04	-85.7	88.2
45.	7.94E+04	7.38E+04	8.53E+04	7.41E+04	8.50E+04	-119.	125.
65.	7.19E+04	5.61E+04	8.54E+04	5.71E+04	8.48E+04	-229.	198.

Table M-164. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-35.0	35.6
15.	8.42E+04	8.26E+04	8.58E+04	8.26E+04	8.58E+04	-104.	106.
30.	8.03E+04	7.40E+04	8.66E+04	7.41E+04	8.66E+04	-205.	210.
45.	7.39E+04	6.03E+04	8.78E+04	6.05E+04	8.78E+04	-298.	309.
65.	6.24E+04	3.58E+04	9.03E+04	3.61E+04	9.03E+04	-403.	430.

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Table M–165. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-25.4	25.9
15.	8.46E+04	8.35E+04	8.58E+04	8.35E+04	8.58E+04	-74.4	76.1
30.	8.21E+04	7.78E+04	8.65E+04	7.78E+04	8.65E+04	-141.	148.
45.	7.83E+04	6.93E+04	8.77E+04	6.94E+04	8.78E+04	-197.	211.
65.	6.99E+04	4.79E+04	9.02E+04	4.84E+04	9.02E+04	-331.	312.

Table M–166. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.56E+04	8.53E+04	8.56E+04	-26.5	34.0
15.	8.47E+04	8.36E+04	8.61E+04	8.36E+04	8.60E+04	-76.1	86.4
30.	8.23E+04	7.79E+04	8.79E+04	7.81E+04	8.75E+04	-141.	173.
45.	7.83E+04	6.99E+04	9.01E+04	7.01E+04	8.94E+04	-181.	245.
65.	6.94E+04	5.15E+04	9.49E+04	5.24E+04	9.23E+04	-261.	352.

TASK 1/ROLL MOTION/MODEL 5613

Table M-167. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-168. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.61E+04	8.56E+04	8.60E+04	-29.4	35.4
15.	8.50E+04	8.37E+04	8.66E+04	8.38E+04	8.65E+04	-84.1	97.5
30.	8.25E+04	7.74E+04	8.85E+04	7.75E+04	8.82E+04	-167.	191.
45.	7.87E+04	6.79E+04	9.51E+04	6.80E+04	9.15E+04	-237.	286.
65.	7.17E+04	5.26E+04	1.07E+05	5.26E+04	9.77E+04	-293.	401.

# TASK 1/ROLL MOTION/MODEL 5613

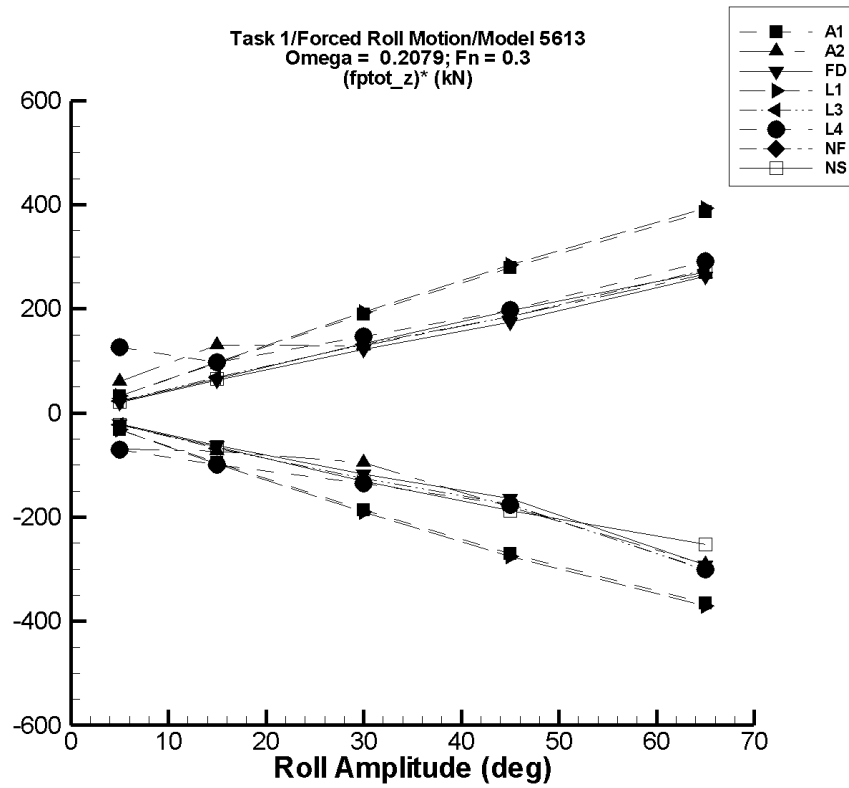


Figure M-22. Minimum and Maximum of  $(F_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M–169. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.0	32.2
15.	8.45E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-95.5	96.1
30.	8.02E+04	7.46E+04	8.59E+04	7.46E+04	8.59E+04	-187.	190.
45.	7.34E+04	6.12E+04	8.59E+04	6.12E+04	8.59E+04	-271.	279.
65.	6.08E+04	3.71E+04	8.59E+04	3.71E+04	8.59E+04	-365.	386.

Table M–170. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-69.6	60.1
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-73.6	131.
30.	8.20E+04	7.91E+04	8.59E+04	7.91E+04	8.59E+04	-96.0	129.
45.	7.76E+04	6.95E+04	8.59E+04	6.94E+04	8.59E+04	-180.	186.
65.	6.85E+04	4.95E+04	8.59E+04	4.96E+04	8.58E+04	-291.	267.



# TASK 1/ROLL MOTION/MODEL 5613

Table M-171. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-20.7	20.1
15.	8.43E+04	8.34E+04	8.53E+04	8.34E+04	8.53E+04	-62.1	62.5
30.	8.16E+04	7.81E+04	8.53E+04	7.81E+04	8.53E+04	-117.	122.
45.	7.75E+04	7.00E+04	8.53E+04	7.01E+04	8.53E+04	-164.	174.
65.	6.82E+04	4.91E+04	8.53E+04	4.92E+04	8.53E+04	-293.	263.

Table M-172. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-32.7	32.7
15.	8.04E+04	7.89E+04	8.18E+04	7.89E+04	8.18E+04	-97.6	97.9
30.	7.61E+04	7.04E+04	8.19E+04	7.04E+04	8.19E+04	-191.	193.
45.	6.92E+04	5.68E+04	8.20E+04	5.68E+04	8.20E+04	-276.	284.
65.	5.66E+04	3.24E+04	8.22E+04	3.24E+04	8.22E+04	-371.	393.

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Table M-173. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-23.1	23.2
15.	8.08E+04	7.98E+04	8.18E+04	7.98E+04	8.18E+04	-67.3	67.8
30.	7.79E+04	7.41E+04	8.19E+04	7.41E+04	8.18E+04	-126.	131.
45.	7.36E+04	6.57E+04	8.20E+04	6.57E+04	8.19E+04	-175.	186.
65.	6.42E+04	4.45E+04	8.21E+04	4.46E+04	8.21E+04	-302.	275.

Table M-174. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.16E+04	8.12E+04	8.29E+04	8.12E+04	8.22E+04	-70.9	127.
15.	8.07E+04	7.92E+04	8.26E+04	7.92E+04	8.22E+04	-99.5	97.0
30.	7.80E+04	7.38E+04	8.27E+04	7.40E+04	8.24E+04	-135.	147.
45.	7.39E+04	6.60E+04	8.33E+04	6.60E+04	8.28E+04	-176.	198.
65.	6.52E+04	4.56E+04	8.47E+04	4.57E+04	8.41E+04	-300.	292.

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Table M-175. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-176. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.57E+04	8.59E+04	-22.5	22.0
15.	8.49E+04	8.39E+04	8.60E+04	8.39E+04	8.59E+04	-64.8	65.7
30.	8.21E+04	7.81E+04	8.63E+04	7.82E+04	8.61E+04	-131.	134.
45.	7.79E+04	6.93E+04	8.75E+04	6.94E+04	8.67E+04	-188.	196.
65.	7.03E+04	5.39E+04	8.94E+04	5.39E+04	8.79E+04	-252.	271.

# TASK 1/ROLL MOTION/MODEL 5613

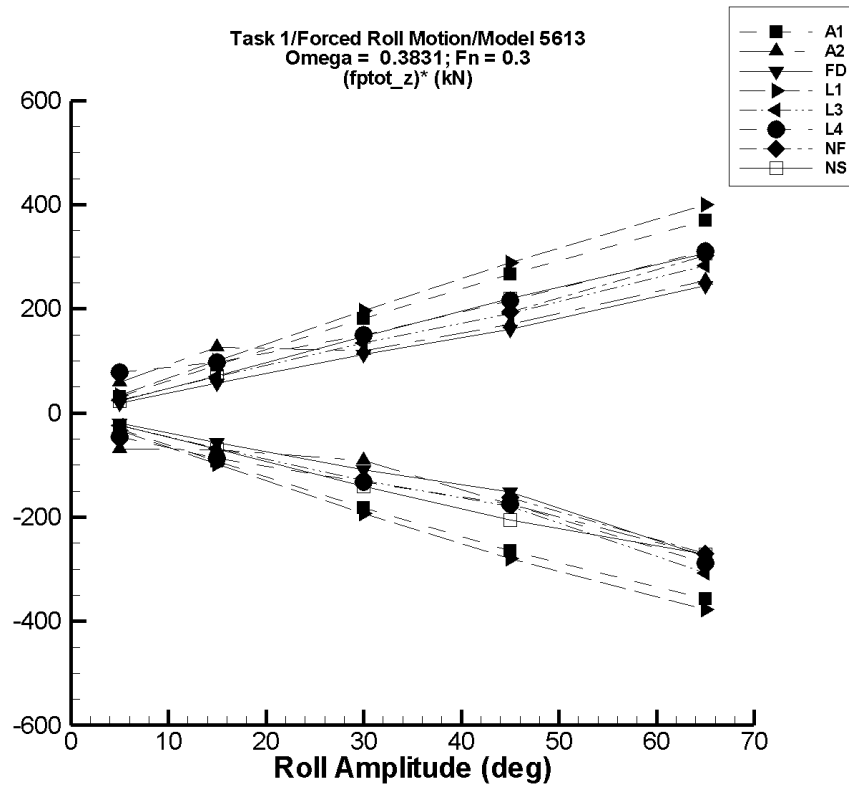


Figure M-23. Minimum and Maximum of  $(F_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

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Table M-177. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-31.2	30.7
15.	8.45E+04	8.31E+04	8.59E+04	8.31E+04	8.59E+04	-93.1	91.8
30.	8.04E+04	7.49E+04	8.59E+04	7.49E+04	8.58E+04	-182.	181.
45.	7.38E+04	6.19E+04	8.59E+04	6.19E+04	8.58E+04	-265.	266.
65.	6.16E+04	3.85E+04	8.59E+04	3.84E+04	8.56E+04	-357.	369.

Table M-178. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-68.9	58.2
15.	8.40E+04	8.29E+04	8.59E+04	8.29E+04	8.59E+04	-71.2	127.
30.	8.22E+04	7.95E+04	8.59E+04	7.95E+04	8.58E+04	-91.0	120.
45.	7.80E+04	7.00E+04	8.59E+04	7.01E+04	8.56E+04	-175.	170.
65.	6.91E+04	4.40E+04	8.59E+04	5.13E+04	8.56E+04	-273.	254.

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Table M-179. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-19.2	18.6
15.	8.44E+04	8.35E+04	8.53E+04	8.35E+04	8.53E+04	-57.4	57.7
30.	8.18E+04	7.85E+04	8.53E+04	7.86E+04	8.52E+04	-109.	113.
45.	7.80E+04	7.10E+04	8.53E+04	7.11E+04	8.52E+04	-152.	160.
65.	6.92E+04	5.09E+04	8.53E+04	5.13E+04	8.51E+04	-276.	244.

Table M-180. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-33.2	33.4
15.	8.04E+04	7.89E+04	8.19E+04	7.89E+04	8.19E+04	-98.8	99.8
30.	7.62E+04	7.04E+04	8.21E+04	7.04E+04	8.21E+04	-194.	197.
45.	6.94E+04	5.67E+04	8.24E+04	5.68E+04	8.25E+04	-280.	289.
65.	5.71E+04	3.24E+04	8.31E+04	3.25E+04	8.31E+04	-378.	401.

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Table M–181. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-23.5	23.7
15.	8.08E+04	7.98E+04	8.18E+04	7.98E+04	8.18E+04	-68.6	69.5
30.	7.80E+04	7.41E+04	8.20E+04	7.41E+04	8.21E+04	-129.	134.
45.	7.38E+04	6.57E+04	8.24E+04	6.57E+04	8.24E+04	-179.	191.
65.	6.46E+04	4.45E+04	8.30E+04	4.46E+04	8.31E+04	-307.	284.

Table M–182. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.16E+04	8.13E+04	8.23E+04	8.14E+04	8.20E+04	-46.1	78.6
15.	8.07E+04	7.93E+04	8.23E+04	7.94E+04	8.22E+04	-87.1	97.0
30.	7.80E+04	7.40E+04	8.29E+04	7.40E+04	8.25E+04	-133.	150.
45.	7.40E+04	6.61E+04	8.41E+04	6.61E+04	8.37E+04	-176.	215.
65.	6.53E+04	4.64E+04	8.61E+04	4.65E+04	8.54E+04	-288.	310.

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Table M–183. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	7.60E+04	7.24E+04	8.04E+04	7.24E+04	8.02E+04	-117.	141.
45.	7.21E+04	6.46E+04	8.13E+04	6.48E+04	8.09E+04	-162.	194.
65.	6.39E+04	4.58E+04	8.41E+04	4.63E+04	8.36E+04	-271.	303.

Table M–184. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.57E+04	8.59E+04	-23.5	22.7
15.	8.49E+04	8.39E+04	8.61E+04	8.39E+04	8.60E+04	-69.2	71.1
30.	8.22E+04	7.79E+04	8.70E+04	7.80E+04	8.67E+04	-141.	147.
45.	7.81E+04	6.88E+04	8.97E+04	6.89E+04	8.80E+04	-205.	220.
65.	7.08E+04	5.31E+04	9.41E+04	5.31E+04	9.06E+04	-271.	306.



# TASK 1/ROLL MOTION/MODEL 5613

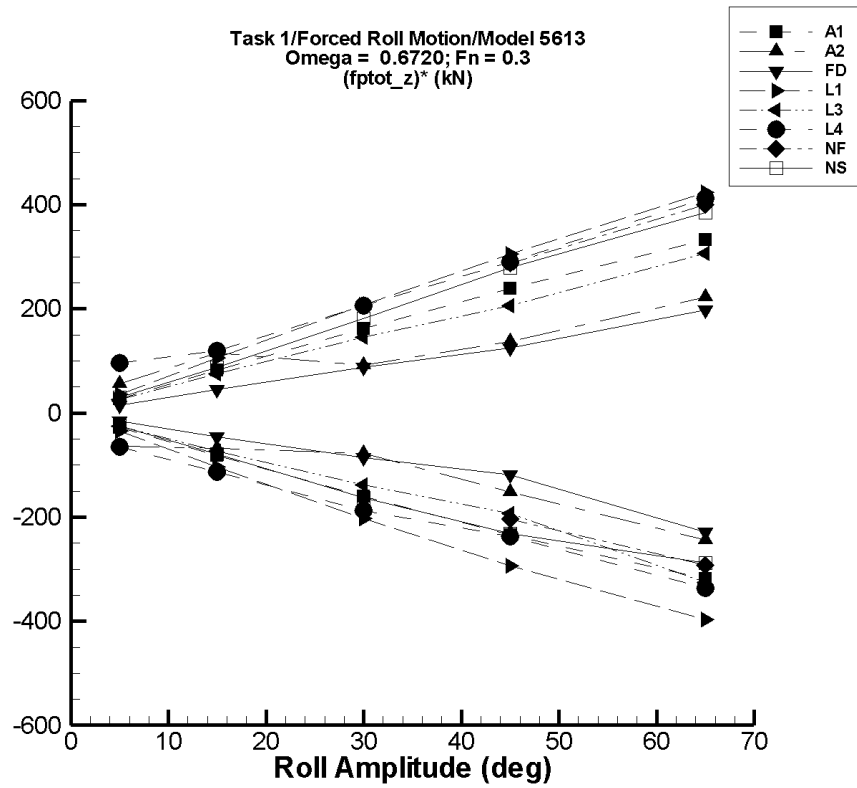


Figure M-24. Minimum and Maximum of  $(F_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

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Table M–185. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-27.4	27.5
15.	8.46E+04	8.33E+04	8.59E+04	8.34E+04	8.59E+04	-81.8	82.0
30.	8.08E+04	7.58E+04	8.59E+04	7.60E+04	8.57E+04	-161.	162.
45.	7.47E+04	6.37E+04	8.60E+04	6.42E+04	8.54E+04	-234.	239.
65.	6.33E+04	4.18E+04	8.60E+04	4.27E+04	8.49E+04	-318.	332.

Table M–186. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-64.1	55.7
15.	8.41E+04	8.30E+04	8.59E+04	8.31E+04	8.58E+04	-68.2	116.
30.	8.26E+04	8.02E+04	8.59E+04	8.03E+04	8.54E+04	-77.4	92.1
45.	7.89E+04	7.14E+04	8.59E+04	7.20E+04	8.51E+04	-153.	137.
65.	7.10E+04	5.41E+04	8.62E+04	5.51E+04	8.54E+04	-245.	222.

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Table M–187. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-15.0	14.7
15.	8.46E+04	8.38E+04	8.53E+04	8.39E+04	8.52E+04	-45.3	45.4
30.	8.25E+04	7.98E+04	8.53E+04	8.00E+04	8.52E+04	-85.7	88.2
45.	7.94E+04	7.38E+04	8.53E+04	7.41E+04	8.50E+04	-119.	125.
65.	7.19E+04	5.61E+04	8.54E+04	5.71E+04	8.48E+04	-229.	198.

Table M–188. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.19E+04	8.15E+04	8.19E+04	-34.6	35.2
15.	8.05E+04	7.89E+04	8.20E+04	7.89E+04	8.20E+04	-103.	105.
30.	7.64E+04	7.03E+04	8.27E+04	7.04E+04	8.27E+04	-202.	208.
45.	7.00E+04	5.66E+04	8.37E+04	5.68E+04	8.37E+04	-294.	305.
65.	5.82E+04	3.20E+04	8.58E+04	3.24E+04	8.58E+04	-397.	424.

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Table M–189. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-25.0	25.5
15.	8.09E+04	7.97E+04	8.20E+04	7.98E+04	8.20E+04	-73.1	74.8
30.	7.83E+04	7.40E+04	8.26E+04	7.41E+04	8.26E+04	-138.	145.
45.	7.43E+04	6.55E+04	8.36E+04	6.57E+04	8.36E+04	-193.	207.
65.	6.58E+04	4.42E+04	8.57E+04	4.46E+04	8.57E+04	-326.	307.

Table M–190. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.16E+04	8.12E+04	8.23E+04	8.13E+04	8.21E+04	-65.5	96.1
15.	8.07E+04	7.90E+04	8.27E+04	7.90E+04	8.25E+04	-113.	119.
30.	7.81E+04	7.23E+04	8.45E+04	7.24E+04	8.42E+04	-188.	206.
45.	7.41E+04	6.33E+04	8.77E+04	6.35E+04	8.72E+04	-237.	289.
65.	6.51E+04	4.27E+04	9.30E+04	4.33E+04	9.19E+04	-336.	412.

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Table M–191. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	7.66E+04	7.14E+04	8.33E+04	7.14E+04	8.26E+04	-171.	200.
45.	7.25E+04	6.32E+04	8.76E+04	6.33E+04	8.54E+04	-204.	288.
65.	6.45E+04	4.52E+04	9.38E+04	4.56E+04	9.06E+04	-292.	400.

Table M–192. Minimum and Maximum of  $F_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{ptot}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{ptot}}$		Filtered $F_z^{\text{ptot}}$		Filtered $(F_z^{\text{ptot}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.60E+04	8.57E+04	8.59E+04	-25.9	29.6
15.	8.50E+04	8.38E+04	8.65E+04	8.38E+04	8.64E+04	-79.4	87.8
30.	8.25E+04	7.76E+04	8.84E+04	7.77E+04	8.80E+04	-162.	181.
45.	7.86E+04	6.81E+04	9.51E+04	6.82E+04	9.12E+04	-232.	279.
65.	7.16E+04	5.29E+04	1.07E+05	5.29E+04	9.67E+04	-288.	386.

# Task 1/ROLL MOTION/MODEL 5613

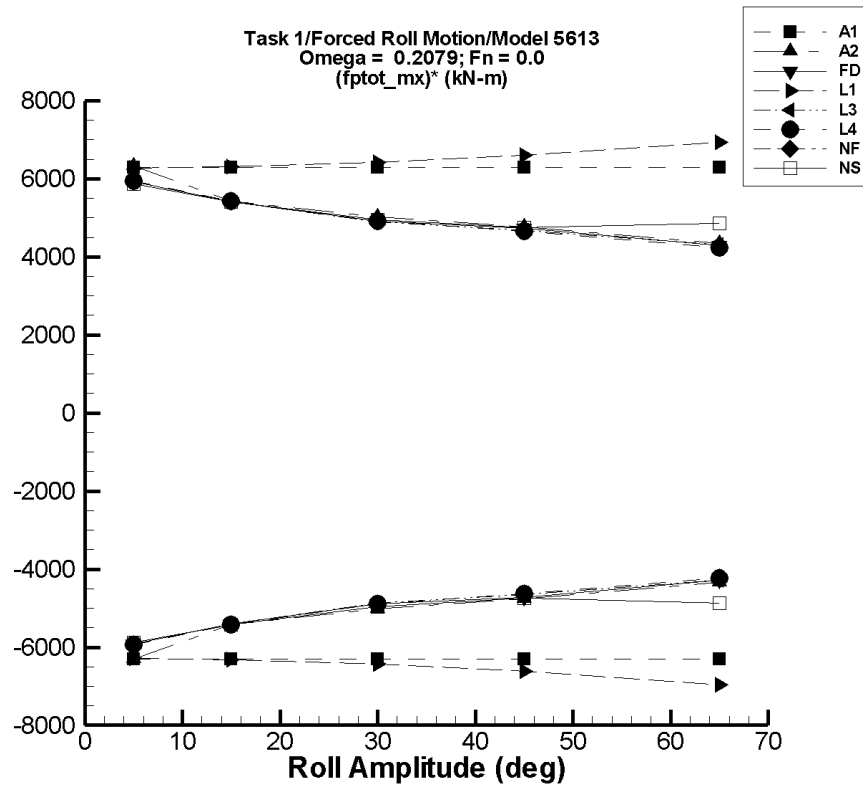


Figure M-25. Minimum and Maximum of  $(M_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–193. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-0.323	-3.15E+04	3.15E+04	-3.15E+04	3.14E+04	-6.30E+03	6.29E+03
15.	-0.961	-9.44E+04	9.44E+04	-9.44E+04	9.43E+04	-6.29E+03	6.29E+03
30.	-1.92	-1.89E+05	1.89E+05	-1.89E+05	1.89E+05	-6.29E+03	6.29E+03
45.	-2.92	-2.83E+05	2.83E+05	-2.83E+05	2.83E+05	-6.29E+03	6.29E+03
65.	-4.24	-4.09E+05	4.09E+05	-4.09E+05	4.09E+05	-6.29E+03	6.29E+03

Table M–194. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-58.7	-3.16E+04	3.16E+04	-3.16E+04	3.15E+04	-6.31E+03	6.32E+03
15.	-119.	-8.13E+04	8.14E+04	-8.14E+04	8.13E+04	-5.42E+03	5.43E+03
30.	-179.	-1.51E+05	1.51E+05	-1.50E+05	1.50E+05	-5.01E+03	5.02E+03
45.	-282.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.75E+03	4.76E+03
65.	-581.	-2.82E+05	2.82E+05	-2.82E+05	2.82E+05	-4.33E+03	4.34E+03

Table M–195. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-7.78	-2.97E+04	2.97E+04	-2.96E+04	2.96E+04	-5.92E+03	5.93E+03
15.	-65.6	-8.13E+04	8.13E+04	-8.12E+04	8.12E+04	-5.41E+03	5.42E+03
30.	-194.	-1.47E+05	1.47E+05	-1.47E+05	1.47E+05	-4.90E+03	4.91E+03
45.	-277.	-2.13E+05	2.13E+05	-2.12E+05	2.12E+05	-4.72E+03	4.73E+03
65.	-498.	-2.78E+05	2.78E+05	-2.78E+05	2.78E+05	-4.28E+03	4.28E+03

Table M–196. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	0.310	-3.14E+04	3.14E+04	-3.14E+04	3.14E+04	-6.28E+03	6.28E+03
15.	8.47	-9.47E+04	9.47E+04	-9.47E+04	9.47E+04	-6.31E+03	6.31E+03
30.	68.1	-1.93E+05	1.93E+05	-1.93E+05	1.93E+05	-6.43E+03	6.42E+03
45.	226.	-2.97E+05	2.97E+05	-2.97E+05	2.97E+05	-6.61E+03	6.60E+03
65.	655.	-4.52E+05	4.52E+05	-4.52E+05	4.52E+05	-6.96E+03	6.94E+03



Table M–197. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-18.4	-2.96E+04	2.96E+04	-2.96E+04	2.96E+04	-5.92E+03	5.93E+03
15.	-125.	-8.11E+04	8.11E+04	-8.11E+04	8.11E+04	-5.40E+03	5.41E+03
30.	-358.	-1.47E+05	1.47E+05	-1.46E+05	1.46E+05	-4.87E+03	4.89E+03
45.	-501.	-2.10E+05	2.10E+05	-2.10E+05	2.10E+05	-4.66E+03	4.68E+03
65.	-774.	-2.79E+05	2.79E+05	-2.79E+05	2.79E+05	-4.28E+03	4.31E+03

Table M–198. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-17.5	-2.97E+04	2.97E+04	-2.97E+04	2.97E+04	-5.93E+03	5.94E+03
15.	-121.	-8.14E+04	8.14E+04	-8.14E+04	8.14E+04	-5.42E+03	5.43E+03
30.	-349.	-1.47E+05	1.47E+05	-1.47E+05	1.47E+05	-4.89E+03	4.92E+03
45.	-519.	-2.09E+05	2.09E+05	-2.09E+05	2.09E+05	-4.64E+03	4.66E+03
65.	-834.	-2.76E+05	2.75E+05	-2.75E+05	2.75E+05	-4.22E+03	4.24E+03

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Table M–199. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{ptot}}$		Filtered $M_x^{\text{ptot}}$		Filtered $(M_x^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–200. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{ptot}}$		Filtered $M_x^{\text{ptot}}$		Filtered $(M_x^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.54E-02	-2.97E+04	2.97E+04	-2.94E+04	2.94E+04	-5.87E+03	5.87E+03
15.	-0.144	-8.19E+04	8.19E+04	-8.12E+04	8.12E+04	-5.41E+03	5.41E+03
30.	-0.838	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.96E+03
45.	-2.88	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.75E+03	4.75E+03
65.	-314.	-3.18E+05	3.16E+05	-3.17E+05	3.15E+05	-4.88E+03	4.86E+03

# TASK 1/ROLL MOTION/MODEL 5613

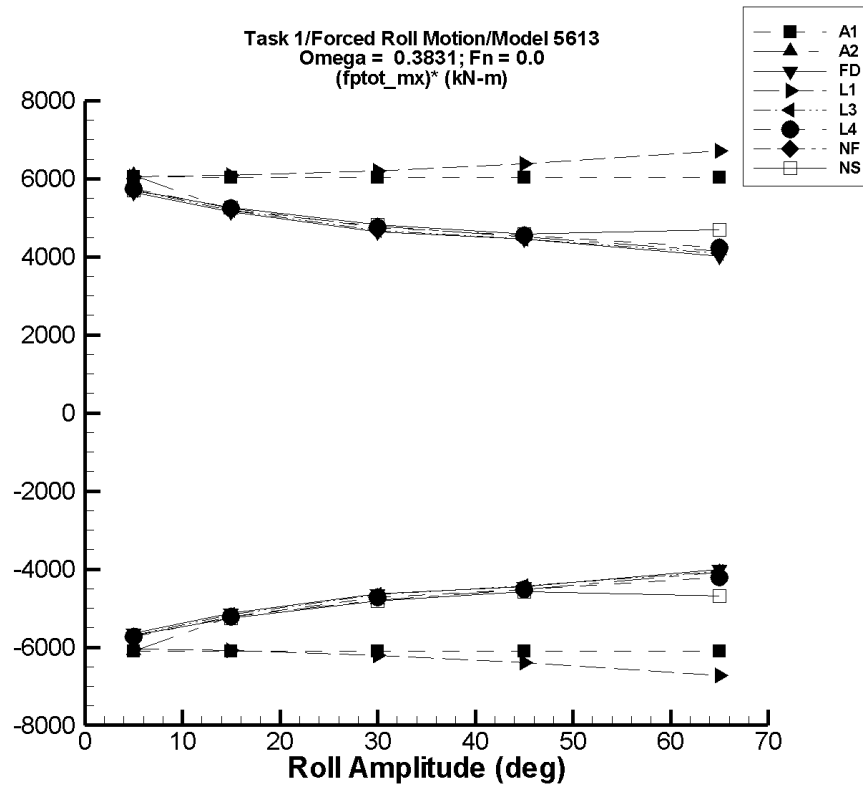


Figure M-26. Minimum and Maximum of  $(M_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–201. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-1.60	-3.04E+04	3.03E+04	-3.05E+04	3.02E+04	-6.09E+03	6.04E+03
15.	-4.81	-9.12E+04	9.10E+04	-9.14E+04	9.06E+04	-6.09E+03	6.04E+03
30.	-9.63	-1.82E+05	1.82E+05	-1.83E+05	1.81E+05	-6.09E+03	6.04E+03
45.	-14.4	-2.73E+05	2.73E+05	-2.74E+05	2.72E+05	-6.09E+03	6.04E+03
65.	-20.8	-3.95E+05	3.94E+05	-3.96E+05	3.93E+05	-6.09E+03	6.04E+03

Table M–202. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-56.2	-3.05E+04	3.04E+04	-3.05E+04	3.03E+04	-6.10E+03	6.08E+03
15.	-116.	-7.81E+04	7.79E+04	-7.83E+04	7.78E+04	-5.21E+03	5.19E+03
30.	-167.	-1.44E+05	1.44E+05	-1.44E+05	1.43E+05	-4.80E+03	4.78E+03
45.	-264.	-2.05E+05	2.04E+05	-2.04E+05	2.03E+05	-4.53E+03	4.51E+03
65.	-1.43E+03	-2.67E+05	2.68E+05	-2.67E+05	2.68E+05	-4.09E+03	4.14E+03

Table M-203. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-7.40	-2.83E+04	2.83E+04	-2.82E+04	2.82E+04	-5.65E+03	5.65E+03
15.	-60.4	-7.73E+04	7.73E+04	-7.71E+04	7.71E+04	-5.14E+03	5.14E+03
30.	-176.	-1.39E+05	1.39E+05	-1.39E+05	1.39E+05	-4.63E+03	4.64E+03
45.	-227.	-2.01E+05	2.01E+05	-2.00E+05	2.00E+05	-4.44E+03	4.45E+03
65.	-536.	-2.61E+05	2.61E+05	-2.61E+05	2.61E+05	-4.01E+03	4.02E+03

Table M-204. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	0.332	-3.03E+04	3.03E+04	-3.03E+04	3.03E+04	-6.05E+03	6.05E+03
15.	11.6	-9.14E+04	9.14E+04	-9.13E+04	9.13E+04	-6.09E+03	6.09E+03
30.	93.5	-1.86E+05	1.86E+05	-1.86E+05	1.86E+05	-6.20E+03	6.20E+03
45.	310.	-2.88E+05	2.88E+05	-2.87E+05	2.87E+05	-6.39E+03	6.37E+03
65.	896.	-4.37E+05	4.37E+05	-4.37E+05	4.37E+05	-6.73E+03	6.70E+03

Table M–205. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_x^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-24.7	-2.86E+04	2.86E+04	-2.85E+04	2.85E+04	-5.70E+03	5.71E+03
15.	-166.	-7.78E+04	7.78E+04	-7.77E+04	7.77E+04	-5.17E+03	5.19E+03
30.	-474.	-1.40E+05	1.40E+05	-1.40E+05	1.40E+05	-4.64E+03	4.67E+03
45.	-633.	-2.00E+05	2.00E+05	-2.00E+05	2.00E+05	-4.43E+03	4.46E+03
65.	-1.19E+03	-2.65E+05	2.65E+05	-2.65E+05	2.65E+05	-4.06E+03	4.09E+03

Table M–206. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_x^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-24.6	-2.87E+04	2.87E+04	-2.87E+04	2.87E+04	-5.73E+03	5.74E+03
15.	-169.	-7.87E+04	7.87E+04	-7.86E+04	7.86E+04	-5.23E+03	5.25E+03
30.	-481.	-1.42E+05	1.42E+05	-1.42E+05	1.42E+05	-4.73E+03	4.76E+03
45.	-667.	-2.04E+05	2.05E+05	-2.04E+05	2.04E+05	-4.52E+03	4.55E+03
65.	-1.29E+03	-2.76E+05	2.74E+05	-2.75E+05	2.74E+05	-4.21E+03	4.23E+03

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Table M-207. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{ptot}}$		Filtered $M_x^{\text{ptot}}$		Filtered $(M_x^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-208. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{ptot}}$		Filtered $M_x^{\text{ptot}}$		Filtered $(M_x^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.63E-02	-2.88E+04	2.88E+04	-2.85E+04	2.85E+04	-5.70E+03	5.70E+03
15.	0.257	-7.95E+04	7.95E+04	-7.89E+04	7.89E+04	-5.26E+03	5.26E+03
30.	1.25	-1.45E+05	1.45E+05	-1.44E+05	1.44E+05	-4.81E+03	4.81E+03
45.	4.86	-2.07E+05	2.07E+05	-2.06E+05	2.06E+05	-4.58E+03	4.58E+03
65.	206.	-3.05E+05	3.06E+05	-3.05E+05	3.06E+05	-4.69E+03	4.70E+03

# TASK 1/ROLL MOTION/MODEL 5613

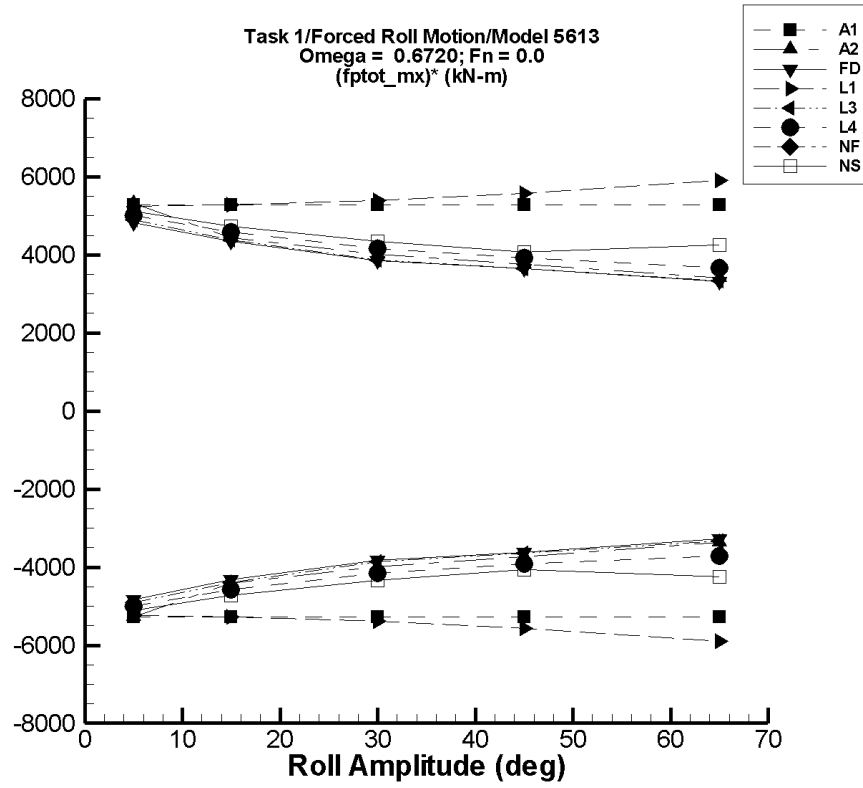


Figure M-27. Minimum and Maximum of  $(M_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.



Table M–209. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-1.47	-2.67E+04	2.67E+04	-2.64E+04	2.64E+04	-5.27E+03	5.28E+03
15.	-4.41	-8.00E+04	8.00E+04	-7.91E+04	7.91E+04	-5.27E+03	5.27E+03
30.	-8.81	-1.60E+05	1.60E+05	-1.58E+05	1.58E+05	-5.27E+03	5.27E+03
45.	-13.2	-2.40E+05	2.40E+05	-2.37E+05	2.37E+05	-5.27E+03	5.27E+03
65.	-19.1	-3.46E+05	3.47E+05	-3.43E+05	3.43E+05	-5.27E+03	5.27E+03

Table M–210. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-111.	-2.67E+04	2.67E+04	-2.65E+04	2.65E+04	-5.27E+03	5.32E+03
15.	-157.	-6.67E+04	6.68E+04	-6.64E+04	6.65E+04	-4.42E+03	4.44E+03
30.	-330.	-1.21E+05	1.21E+05	-1.20E+05	1.20E+05	-4.00E+03	4.02E+03
45.	-559.	-1.70E+05	1.71E+05	-1.68E+05	1.68E+05	-3.73E+03	3.76E+03
65.	-1.79E+03	-2.21E+05	2.21E+05	-2.20E+05	2.20E+05	-3.36E+03	3.41E+03

Table M-211. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-18.4	-2.44E+04	2.44E+04	-2.41E+04	2.41E+04	-4.83E+03	4.83E+03
15.	-150.	-6.55E+04	6.55E+04	-6.49E+04	6.49E+04	-4.32E+03	4.34E+03
30.	-427.	-1.16E+05	1.16E+05	-1.15E+05	1.15E+05	-3.82E+03	3.84E+03
45.	-537.	-1.66E+05	1.66E+05	-1.64E+05	1.64E+05	-3.62E+03	3.65E+03
65.	-1.22E+03	-2.16E+05	2.16E+05	-2.14E+05	2.14E+05	-3.28E+03	3.31E+03

Table M-212. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-0.423	-2.63E+04	2.63E+04	-2.62E+04	2.62E+04	-5.24E+03	5.24E+03
15.	-1.52	-7.95E+04	7.95E+04	-7.91E+04	7.91E+04	-5.28E+03	5.28E+03
30.	-4.10	-1.62E+05	1.62E+05	-1.62E+05	1.62E+05	-5.39E+03	5.39E+03
45.	-8.26	-2.52E+05	2.52E+05	-2.51E+05	2.51E+05	-5.57E+03	5.57E+03
65.	-15.1	-3.86E+05	3.86E+05	-3.84E+05	3.84E+05	-5.90E+03	5.90E+03

Table M-213. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-2.24	-2.46E+04	2.46E+04	-2.45E+04	2.45E+04	-4.90E+03	4.90E+03
15.	-16.5	-6.60E+04	6.60E+04	-6.58E+04	6.58E+04	-4.38E+03	4.39E+03
30.	-56.3	-1.16E+05	1.16E+05	-1.16E+05	1.16E+05	-3.87E+03	3.87E+03
45.	-140.	-1.65E+05	1.65E+05	-1.64E+05	1.64E+05	-3.65E+03	3.65E+03
65.	-75.5	-2.17E+05	2.17E+05	-2.17E+05	2.17E+05	-3.33E+03	3.33E+03

Table M-214. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-5.26	-2.53E+04	2.51E+04	-2.50E+04	2.50E+04	-5.00E+03	5.00E+03
15.	11.1	-6.90E+04	6.90E+04	-6.87E+04	6.87E+04	-4.58E+03	4.58E+03
30.	-107.	-1.26E+05	1.25E+05	-1.25E+05	1.25E+05	-4.16E+03	4.16E+03
45.	-235.	-1.80E+05	1.77E+05	-1.77E+05	1.76E+05	-3.92E+03	3.92E+03
65.	-324.	-2.45E+05	2.38E+05	-2.41E+05	2.38E+05	-3.71E+03	3.67E+03

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Table M-215. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{ptot}}$		Filtered $M_x^{\text{ptot}}$		Filtered $(M_x^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-216. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{ptot}}$		Filtered $M_x^{\text{ptot}}$		Filtered $(M_x^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.927	-2.58E+04	2.58E+04	-2.55E+04	2.55E+04	-5.11E+03	5.11E+03
15.	-1.73	-7.16E+04	7.16E+04	-7.10E+04	7.10E+04	-4.73E+03	4.73E+03
30.	0.501	-1.31E+05	1.31E+05	-1.30E+05	1.30E+05	-4.34E+03	4.34E+03
45.	7.09	-1.83E+05	1.83E+05	-1.83E+05	1.83E+05	-4.06E+03	4.06E+03
65.	194.	-2.77E+05	2.78E+05	-2.76E+05	2.77E+05	-4.25E+03	4.26E+03

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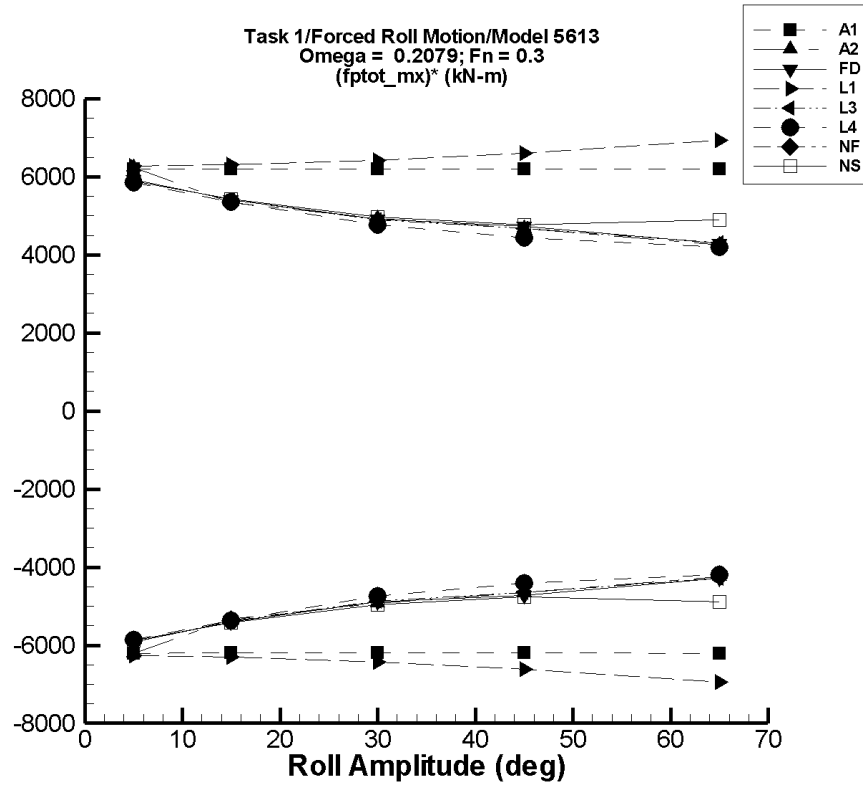


Figure M-28. Minimum and Maximum of  $(M_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-217. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-0.381	-3.10E+04	3.10E+04	-3.10E+04	3.10E+04	-6.20E+03	6.20E+03
15.	-1.15	-9.30E+04	9.30E+04	-9.30E+04	9.29E+04	-6.20E+03	6.19E+03
30.	-2.30	-1.86E+05	1.86E+05	-1.86E+05	1.86E+05	-6.20E+03	6.19E+03
45.	-3.48	-2.79E+05	2.79E+05	-2.79E+05	2.79E+05	-6.20E+03	6.19E+03
65.	-5.02	-4.03E+05	4.03E+05	-4.03E+05	4.03E+05	-6.20E+03	6.19E+03

Table M-218. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-60.8	-3.11E+04	3.11E+04	-3.11E+04	3.11E+04	-6.21E+03	6.23E+03
15.	-120.	-7.99E+04	8.00E+04	-8.00E+04	7.99E+04	-5.33E+03	5.34E+03
30.	-179.	-1.48E+05	1.48E+05	-1.48E+05	1.48E+05	-4.92E+03	4.93E+03
45.	-282.	-2.10E+05	2.10E+05	-2.10E+05	2.10E+05	-4.66E+03	4.67E+03
65.	-581.	-2.76E+05	2.76E+05	-2.76E+05	2.76E+05	-4.24E+03	4.25E+03

Table M–219. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-7.78	-2.97E+04	2.97E+04	-2.96E+04	2.96E+04	-5.92E+03	5.93E+03
15.	-65.6	-8.13E+04	8.13E+04	-8.12E+04	8.12E+04	-5.41E+03	5.42E+03
30.	-194.	-1.47E+05	1.47E+05	-1.47E+05	1.47E+05	-4.90E+03	4.91E+03
45.	-277.	-2.13E+05	2.13E+05	-2.12E+05	2.12E+05	-4.72E+03	4.73E+03
65.	-498.	-2.78E+05	2.78E+05	-2.78E+05	2.78E+05	-4.28E+03	4.28E+03

Table M–220. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	0.296	-3.14E+04	3.14E+04	-3.14E+04	3.14E+04	-6.27E+03	6.27E+03
15.	8.46	-9.47E+04	9.47E+04	-9.46E+04	9.46E+04	-6.31E+03	6.31E+03
30.	68.0	-1.93E+05	1.93E+05	-1.93E+05	1.93E+05	-6.42E+03	6.42E+03
45.	226.	-2.97E+05	2.97E+05	-2.97E+05	2.97E+05	-6.61E+03	6.60E+03
65.	655.	-4.51E+05	4.51E+05	-4.51E+05	4.51E+05	-6.95E+03	6.93E+03

Table M-221. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-18.4	-2.96E+04	2.96E+04	-2.96E+04	2.96E+04	-5.92E+03	5.93E+03
15.	-125.	-8.10E+04	8.10E+04	-8.10E+04	8.10E+04	-5.39E+03	5.41E+03
30.	-358.	-1.46E+05	1.46E+05	-1.46E+05	1.46E+05	-4.87E+03	4.89E+03
45.	-501.	-2.10E+05	2.10E+05	-2.10E+05	2.10E+05	-4.65E+03	4.68E+03
65.	-774.	-2.79E+05	2.79E+05	-2.79E+05	2.79E+05	-4.28E+03	4.30E+03

Table M-222. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	32.6	-2.93E+04	2.93E+04	-2.93E+04	2.93E+04	-5.87E+03	5.86E+03
15.	-18.5	-8.05E+04	8.05E+04	-8.04E+04	8.04E+04	-5.36E+03	5.36E+03
30.	-234.	-1.43E+05	1.44E+05	-1.43E+05	1.43E+05	-4.75E+03	4.76E+03
45.	-426.	-1.99E+05	1.99E+05	-1.99E+05	1.99E+05	-4.41E+03	4.43E+03
65.	-477.	-2.73E+05	2.72E+05	-2.72E+05	2.72E+05	-4.18E+03	4.19E+03



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Table M-223. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{ptot}}$		Filtered $M_x^{\text{ptot}}$		Filtered $(M_x^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-224. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{ptot}}$		Filtered $M_x^{\text{ptot}}$		Filtered $(M_x^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.96E-02	-2.97E+04	2.97E+04	-2.94E+04	2.94E+04	-5.88E+03	5.88E+03
15.	0.356	-8.20E+04	8.20E+04	-8.13E+04	8.13E+04	-5.42E+03	5.42E+03
30.	0.471	-1.50E+05	1.50E+05	-1.49E+05	1.49E+05	-4.97E+03	4.97E+03
45.	1.79E-02	-2.15E+05	2.15E+05	-2.15E+05	2.14E+05	-4.77E+03	4.77E+03
65.	165.	-3.17E+05	3.19E+05	-3.17E+05	3.19E+05	-4.88E+03	4.90E+03

# TASK 1/ROLL MOTION/MODEL 5613

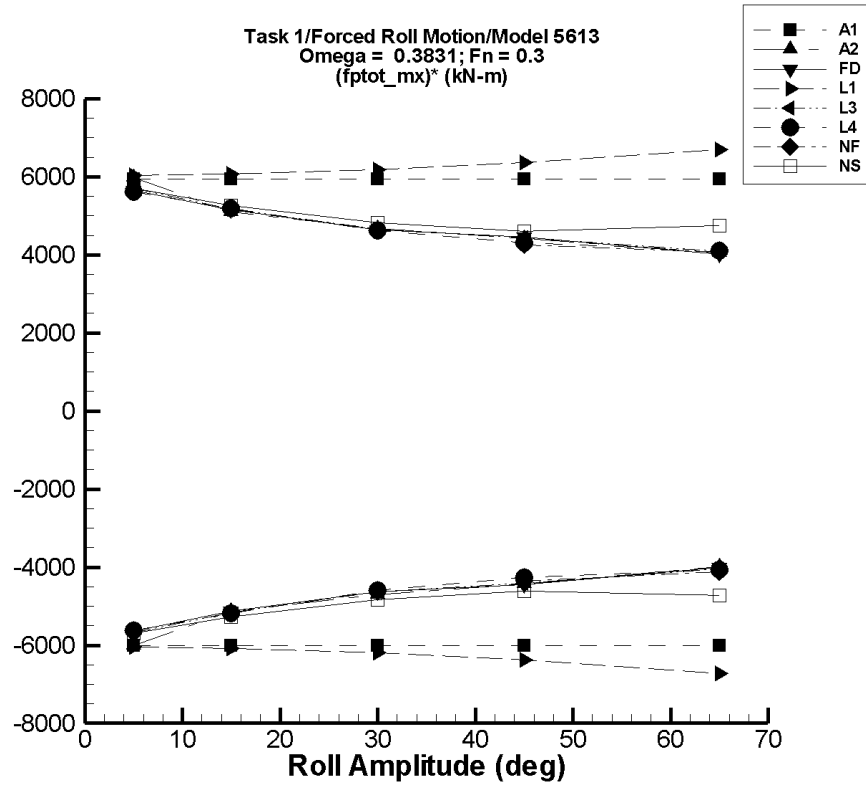


Figure M-29. Minimum and Maximum of  $(M_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M-225. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-1.28	-2.99E+04	2.98E+04	-3.00E+04	2.97E+04	-6.00E+03	5.95E+03
15.	-3.84	-8.97E+04	8.95E+04	-9.00E+04	8.92E+04	-6.00E+03	5.95E+03
30.	-7.67	-1.79E+05	1.79E+05	-1.80E+05	1.78E+05	-6.00E+03	5.95E+03
45.	-11.5	-2.69E+05	2.68E+05	-2.70E+05	2.68E+05	-6.00E+03	5.95E+03
65.	-16.6	-3.89E+05	3.88E+05	-3.90E+05	3.86E+05	-6.00E+03	5.95E+03

Table M-226. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-55.8	-3.00E+04	2.99E+04	-3.01E+04	2.99E+04	-6.00E+03	5.98E+03
15.	-115.	-7.67E+04	7.64E+04	-7.69E+04	7.63E+04	-5.12E+03	5.10E+03
30.	-165.	-1.41E+05	1.41E+05	-1.42E+05	1.40E+05	-4.71E+03	4.68E+03
45.	-261.	-2.00E+05	2.00E+05	-2.00E+05	1.98E+05	-4.44E+03	4.41E+03
65.	-1.44E+03	-2.61E+05	2.62E+05	-2.61E+05	2.62E+05	-4.00E+03	4.05E+03

Table M-227. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-7.40	-2.83E+04	2.83E+04	-2.82E+04	2.82E+04	-5.65E+03	5.65E+03
15.	-60.4	-7.73E+04	7.73E+04	-7.71E+04	7.71E+04	-5.14E+03	5.14E+03
30.	-176.	-1.39E+05	1.39E+05	-1.39E+05	1.39E+05	-4.63E+03	4.64E+03
45.	-227.	-2.01E+05	2.01E+05	-2.00E+05	2.00E+05	-4.44E+03	4.45E+03
65.	-536.	-2.61E+05	2.61E+05	-2.61E+05	2.61E+05	-4.01E+03	4.02E+03

Table M-228. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	0.356	-3.02E+04	3.02E+04	-3.02E+04	3.02E+04	-6.04E+03	6.04E+03
15.	11.6	-9.12E+04	9.12E+04	-9.11E+04	9.11E+04	-6.07E+03	6.07E+03
30.	93.4	-1.86E+05	1.86E+05	-1.86E+05	1.86E+05	-6.19E+03	6.18E+03
45.	309.	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-6.37E+03	6.36E+03
65.	896.	-4.37E+05	4.37E+05	-4.36E+05	4.36E+05	-6.72E+03	6.69E+03

Table M-229. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-24.6	-2.85E+04	2.85E+04	-2.84E+04	2.84E+04	-5.68E+03	5.69E+03
15.	-166.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-5.16E+03	5.18E+03
30.	-474.	-1.40E+05	1.40E+05	-1.39E+05	1.39E+05	-4.63E+03	4.66E+03
45.	-633.	-2.00E+05	2.00E+05	-1.99E+05	1.99E+05	-4.42E+03	4.45E+03
65.	-1.19E+03	-2.64E+05	2.64E+05	-2.64E+05	2.64E+05	-4.04E+03	4.08E+03

Table M-230. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	5.84	-2.81E+04	2.81E+04	-2.81E+04	2.81E+04	-5.62E+03	5.62E+03
15.	-128.	-7.79E+04	7.78E+04	-7.77E+04	7.77E+04	-5.17E+03	5.19E+03
30.	-484.	-1.38E+05	1.38E+05	-1.38E+05	1.38E+05	-4.59E+03	4.62E+03
45.	-750.	-1.93E+05	1.93E+05	-1.93E+05	1.93E+05	-4.27E+03	4.30E+03
65.	-930.	-2.66E+05	2.66E+05	-2.65E+05	2.65E+05	-4.07E+03	4.10E+03

Table M-231. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	600.	-1.38E+05	1.37E+05	-1.37E+05	1.36E+05	-4.60E+03	4.52E+03
45.	578.	-1.97E+05	1.93E+05	-1.95E+05	1.92E+05	-4.35E+03	4.26E+03
65.	585.	-2.68E+05	2.66E+05	-2.67E+05	2.65E+05	-4.12E+03	4.07E+03

Table M-232. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	0.367	-2.88E+04	2.88E+04	-2.85E+04	2.85E+04	-5.70E+03	5.70E+03
15.	3.03	-7.97E+04	7.97E+04	-7.90E+04	7.90E+04	-5.27E+03	5.27E+03
30.	8.97	-1.45E+05	1.45E+05	-1.45E+05	1.45E+05	-4.83E+03	4.83E+03
45.	20.4	-2.08E+05	2.08E+05	-2.07E+05	2.07E+05	-4.61E+03	4.61E+03
65.	222.	-3.08E+05	3.09E+05	-3.07E+05	3.08E+05	-4.73E+03	4.74E+03

# TASK 1/ROLL MOTION/MODEL 5613

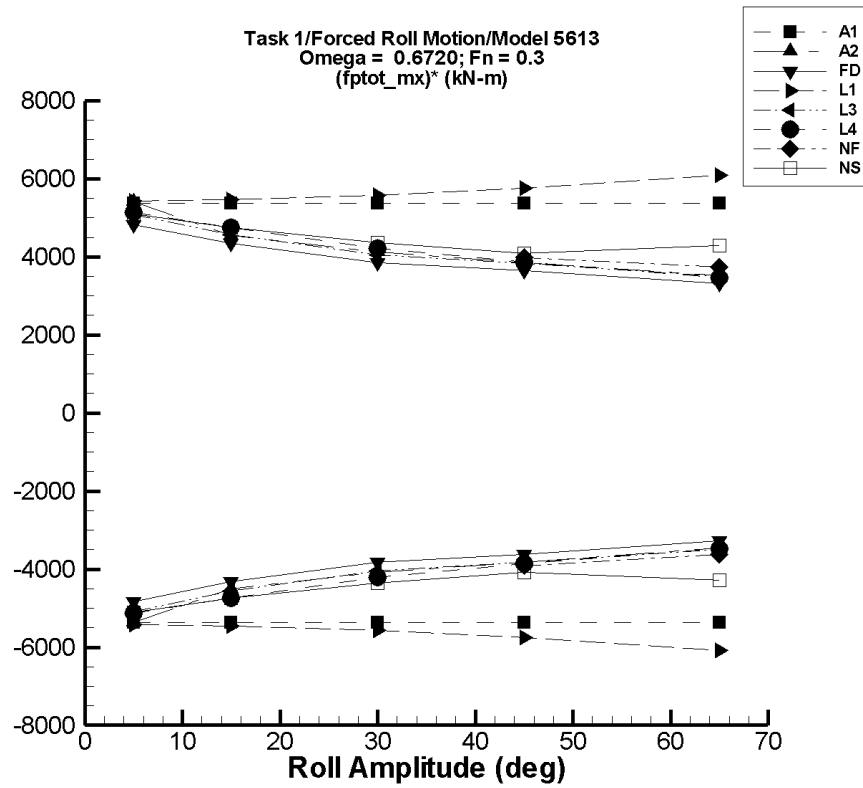


Figure M-30. Minimum and Maximum of  $(M_x^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M-233. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-3.72	-2.71E+04	2.72E+04	-2.68E+04	2.69E+04	-5.36E+03	5.37E+03
15.	-11.2	-8.14E+04	8.15E+04	-8.04E+04	8.06E+04	-5.36E+03	5.37E+03
30.	-22.3	-1.63E+05	1.63E+05	-1.61E+05	1.61E+05	-5.36E+03	5.37E+03
45.	-33.5	-2.44E+05	2.45E+05	-2.41E+05	2.42E+05	-5.36E+03	5.37E+03
65.	-48.3	-3.53E+05	3.53E+05	-3.49E+05	3.49E+05	-5.36E+03	5.37E+03

Table M-234. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-113.	-2.71E+04	2.72E+04	-2.69E+04	2.70E+04	-5.36E+03	5.42E+03
15.	-164.	-6.81E+04	6.83E+04	-6.78E+04	6.79E+04	-4.51E+03	4.54E+03
30.	-344.	-1.24E+05	1.24E+05	-1.23E+05	1.23E+05	-4.09E+03	4.12E+03
45.	-579.	-1.74E+05	1.75E+05	-1.73E+05	1.73E+05	-3.82E+03	3.86E+03
65.	-1.82E+03	-2.28E+05	2.28E+05	-2.27E+05	2.27E+05	-3.46E+03	3.51E+03



Table M-235. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-18.4	-2.44E+04	2.44E+04	-2.41E+04	2.41E+04	-4.83E+03	4.83E+03
15.	-150.	-6.55E+04	6.55E+04	-6.49E+04	6.49E+04	-4.32E+03	4.34E+03
30.	-427.	-1.16E+05	1.16E+05	-1.15E+05	1.15E+05	-3.82E+03	3.84E+03
45.	-537.	-1.66E+05	1.66E+05	-1.64E+05	1.64E+05	-3.62E+03	3.65E+03
65.	-1.22E+03	-2.16E+05	2.16E+05	-2.14E+05	2.14E+05	-3.28E+03	3.31E+03

Table M-236. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-0.440	-2.73E+04	2.72E+04	-2.71E+04	2.71E+04	-5.43E+03	5.43E+03
15.	-1.65	-8.23E+04	8.23E+04	-8.19E+04	8.19E+04	-5.46E+03	5.46E+03
30.	-4.37	-1.68E+05	1.68E+05	-1.67E+05	1.67E+05	-5.57E+03	5.57E+03
45.	-8.67	-2.60E+05	2.60E+05	-2.59E+05	2.59E+05	-5.75E+03	5.75E+03
65.	-15.7	-3.98E+05	3.98E+05	-3.96E+05	3.96E+05	-6.09E+03	6.09E+03

Table M-237. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-2.24	-2.55E+04	2.55E+04	-2.54E+04	2.54E+04	-5.08E+03	5.08E+03
15.	-16.6	-6.87E+04	6.87E+04	-6.85E+04	6.85E+04	-4.57E+03	4.57E+03
30.	-56.5	-1.22E+05	1.22E+05	-1.21E+05	1.21E+05	-4.05E+03	4.05E+03
45.	-140.	-1.73E+05	1.73E+05	-1.72E+05	1.72E+05	-3.83E+03	3.83E+03
65.	-76.2	-2.28E+05	2.28E+05	-2.28E+05	2.27E+05	-3.50E+03	3.50E+03

Table M-238. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	10.3	-2.57E+04	2.57E+04	-2.56E+04	2.56E+04	-5.13E+03	5.12E+03
15.	6.18	-7.15E+04	7.15E+04	-7.12E+04	7.11E+04	-4.74E+03	4.74E+03
30.	-12.5	-1.27E+05	1.27E+05	-1.26E+05	1.26E+05	-4.22E+03	4.22E+03
45.	-13.2	-1.74E+05	1.74E+05	-1.74E+05	1.74E+05	-3.86E+03	3.86E+03
65.	159.	-2.39E+05	2.39E+05	-2.26E+05	2.26E+05	-3.47E+03	3.47E+03

Table M-239. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-361.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-4.20E+03	4.25E+03
45.	-428.	-1.77E+05	1.79E+05	-1.77E+05	1.79E+05	-3.92E+03	3.98E+03
65.	-1.31E+03	-2.39E+05	2.45E+05	-2.37E+05	2.42E+05	-3.62E+03	3.74E+03

Table M-240. Minimum and Maximum of  $M_x^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-0.660	-2.58E+04	2.58E+04	-2.55E+04	2.55E+04	-5.11E+03	5.11E+03
15.	0.574	-7.17E+04	7.17E+04	-7.11E+04	7.11E+04	-4.74E+03	4.74E+03
30.	7.26	-1.31E+05	1.31E+05	-1.31E+05	1.31E+05	-4.35E+03	4.36E+03
45.	18.6	-1.84E+05	1.84E+05	-1.84E+05	1.84E+05	-4.08E+03	4.08E+03
65.	200.	-2.80E+05	2.81E+05	-2.79E+05	2.80E+05	-4.29E+03	4.30E+03

# TASK 1/ROLL MOTION/MODEL 5613

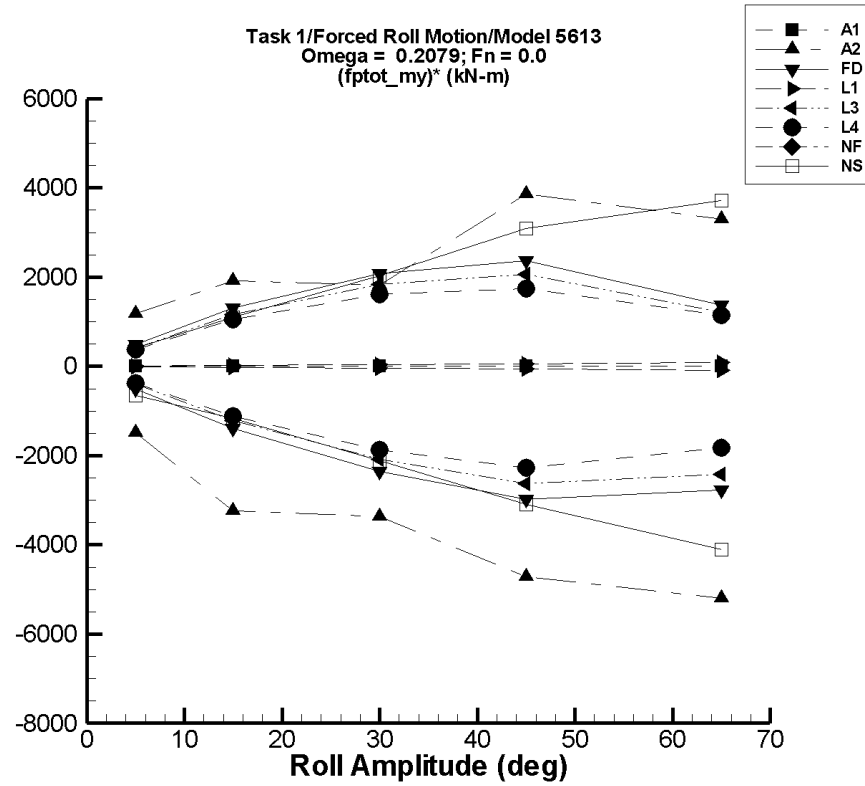


Figure M-31. Minimum and Maximum of  $(M_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M-241. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.26E-05	-7.51E-03	7.47E-03	-7.43E-03	7.39E-03	-1.48E-03	1.48E-03
15.	-3.77E-05	-2.25E-02	2.24E-02	-2.23E-02	2.21E-02	-1.48E-03	1.48E-03
30.	-7.54E-05	-4.50E-02	4.48E-02	-4.45E-02	4.43E-02	-1.48E-03	1.48E-03
45.	-1.13E-04	-6.75E-02	6.72E-02	-6.68E-02	6.64E-02	-1.48E-03	1.48E-03
65.	-1.63E-04	-9.75E-02	9.71E-02	-9.65E-02	9.60E-02	-1.48E-03	1.48E-03

Table M-242. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.2	1.33E+04	-66.2	1.32E+04	-1.48E+03	1.18E+03
15.	4.84E+04	-38.0	7.75E+04	-133.	7.71E+04	-3.24E+03	1.91E+03
30.	1.01E+05	-38.0	1.56E+05	428.	1.56E+05	-3.36E+03	1.81E+03
45.	2.13E+05	-32.1	3.87E+05	448.	3.86E+05	-4.71E+03	3.86E+03
65.	3.39E+05	8.58	5.53E+05	340.	5.53E+05	-5.20E+03	3.30E+03

Table M-243. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.70E+03	4.16E+03	9.15E+03	4.17E+03	9.14E+03	-507.	488.
15.	2.50E+04	4.16E+03	4.47E+04	4.15E+03	4.46E+04	-1.39E+03	1.31E+03
30.	7.49E+04	4.17E+03	1.37E+05	4.11E+03	1.37E+05	-2.36E+03	2.08E+03
45.	1.38E+05	4.18E+03	2.45E+05	4.15E+03	2.45E+05	-2.98E+03	2.37E+03
65.	1.85E+05	4.18E+03	2.75E+05	4.80E+03	2.74E+05	-2.76E+03	1.38E+03

Table M-244. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.1	-6.48E-02	64.4	-9.82E-03	64.3	-6.43	6.44
15.	289.	-0.534	579.	-7.27E-02	579.	-19.3	19.3
30.	1.16E+03	-2.11	2.32E+03	-0.279	2.32E+03	-38.6	38.6
45.	2.60E+03	-4.73	5.21E+03	-0.616	5.21E+03	-57.9	57.9
65.	5.43E+03	-9.86	1.09E+04	-1.29	1.09E+04	-83.6	83.7

Table M-245. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	706.	-1.27E+03	2.75E+03	-1.27E+03	2.75E+03	-396.	408.
15.	1.75E+04	-759.	3.49E+04	-740.	3.49E+04	-1.21E+03	1.16E+03
30.	6.35E+04	978.	1.19E+05	1.06E+03	1.19E+05	-2.08E+03	1.84E+03
45.	1.22E+05	3.87E+03	2.15E+05	4.07E+03	2.15E+05	-2.62E+03	2.06E+03
65.	1.67E+05	9.53E+03	2.46E+05	9.96E+03	2.46E+05	-2.42E+03	1.21E+03

Table M-246. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	694.	-1.54E+03	2.56E+03	-1.18E+03	2.56E+03	-375.	372.
15.	1.74E+04	-469.	3.31E+04	617.	3.31E+04	-1.12E+03	1.05E+03
30.	6.34E+04	5.24E+03	1.12E+05	7.24E+03	1.12E+05	-1.87E+03	1.61E+03
45.	1.22E+05	1.75E+04	2.01E+05	1.98E+04	2.01E+05	-2.28E+03	1.74E+03
65.	1.69E+05	4.58E+04	2.45E+05	5.09E+04	2.44E+05	-1.82E+03	1.15E+03

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Table M-247. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-248. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-1.35E+03	4.77E+03	-725.	4.59E+03	-658.	406.
15.	2.09E+04	2.26E+03	3.84E+04	3.55E+03	3.74E+04	-1.16E+03	1.10E+03
30.	7.68E+04	6.49E+03	1.39E+05	1.32E+04	1.38E+05	-2.12E+03	2.04E+03
45.	1.69E+05	-2.97E+04	3.10E+05	3.00E+04	3.08E+05	-3.09E+03	3.10E+03
65.	3.27E+05	-6.49E+04	5.70E+05	6.06E+04	5.69E+05	-4.10E+03	3.71E+03



# TASK 1/ROLL MOTION/MODEL 5613

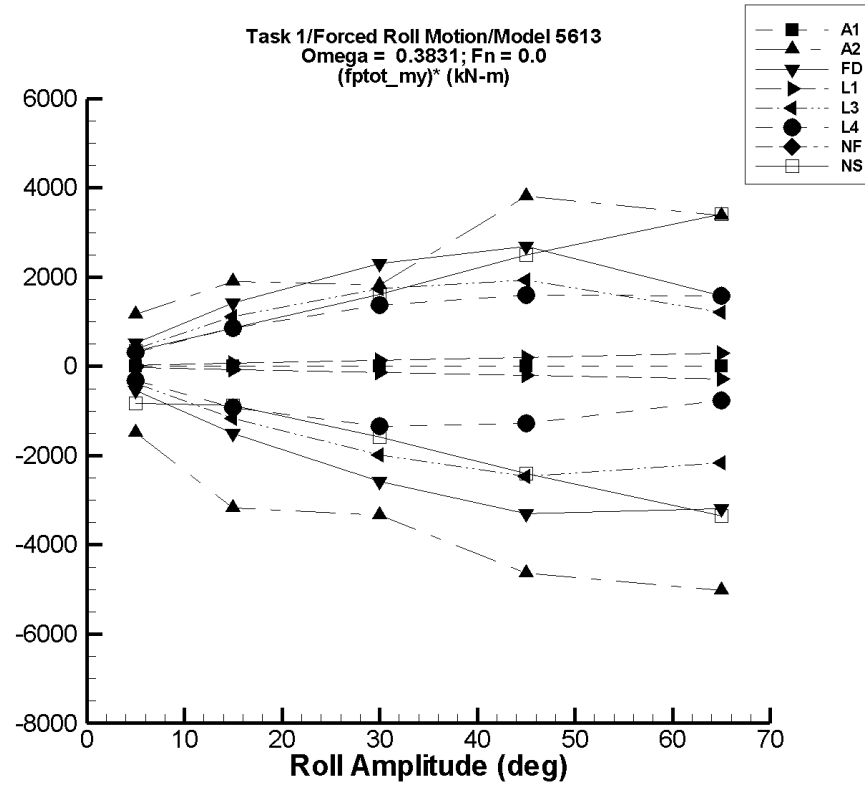


Figure M-32. Minimum and Maximum of  $(M_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M-249. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.14E-05	-2.36E-02	2.52E-02	-2.29E-02	2.49E-02	-4.57E-03	4.99E-03
15.	-1.24E-04	-7.09E-02	7.55E-02	-6.86E-02	7.48E-02	-4.57E-03	4.99E-03
30.	-2.48E-04	-0.142	0.151	-0.137	0.150	-4.57E-03	4.99E-03
45.	-3.73E-04	-0.213	0.227	-0.206	0.224	-4.57E-03	4.99E-03
65.	-5.38E-04	-0.307	0.327	-0.297	0.324	-4.57E-03	4.99E-03

Table M-250. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.3	1.33E+04	-110.	1.32E+04	-1.49E+03	1.17E+03
15.	4.84E+04	-38.2	7.75E+04	642.	7.68E+04	-3.18E+03	1.90E+03
30.	1.01E+05	-38.0	1.56E+05	1.19E+03	1.56E+05	-3.33E+03	1.83E+03
45.	2.13E+05	-38.0	3.86E+05	4.08E+03	3.84E+05	-4.63E+03	3.81E+03
65.	3.34E+05	-2.11E+05	5.53E+05	7.83E+03	5.54E+05	-5.02E+03	3.38E+03

Table M-251. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	6.92E+03	4.16E+03	9.59E+03	4.22E+03	9.55E+03	-540.	526.
15.	2.69E+04	4.18E+03	4.85E+04	4.46E+03	4.82E+04	-1.50E+03	1.42E+03
30.	8.25E+04	4.21E+03	1.52E+05	5.22E+03	1.51E+05	-2.58E+03	2.30E+03
45.	1.55E+05	4.25E+03	2.77E+05	6.53E+03	2.76E+05	-3.30E+03	2.69E+03
65.	2.17E+05	4.31E+03	3.22E+05	9.11E+03	3.20E+05	-3.20E+03	1.59E+03

Table M-252. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	110.	-0.736	221.	-0.156	221.	-22.1	22.2
15.	991.	-6.68	1.99E+03	-1.33	1.99E+03	-66.2	66.6
30.	3.96E+03	-26.7	7.96E+03	-5.26	7.96E+03	-132.	133.
45.	8.92E+03	-59.9	1.79E+04	-11.8	1.79E+04	-198.	200.
65.	1.86E+04	-125.	3.73E+04	-24.5	3.74E+04	-287.	289.

Table M-253. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	786.	-1.12E+03	2.75E+03	-1.12E+03	2.74E+03	-381.	390.
15.	1.81E+04	645.	3.49E+04	622.	3.48E+04	-1.17E+03	1.11E+03
30.	6.61E+04	6.60E+03	1.19E+05	6.54E+03	1.18E+05	-1.99E+03	1.74E+03
45.	1.28E+05	1.65E+04	2.15E+05	1.65E+04	2.14E+05	-2.47E+03	1.93E+03
65.	1.77E+05	3.59E+04	2.57E+05	3.62E+04	2.55E+05	-2.16E+03	1.20E+03

Table M-254. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	740.	-1.62E+03	2.35E+03	-873.	2.29E+03	-323.	310.
15.	1.77E+04	2.19E+03	3.06E+04	3.71E+03	3.06E+04	-933.	859.
30.	6.48E+04	1.98E+04	1.09E+05	2.44E+04	1.06E+05	-1.35E+03	1.38E+03
45.	1.26E+05	5.85E+04	2.00E+05	6.87E+04	1.98E+05	-1.27E+03	1.59E+03
65.	1.75E+05	1.09E+05	2.82E+05	1.25E+05	2.78E+05	-766.	1.58E+03

Table M-255. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-256. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.52E+03	-3.19E+03	5.04E+03	-1.65E+03	4.24E+03	-835.	344.
15.	2.07E+04	-1.02E+04	3.56E+04	7.62E+03	3.35E+04	-871.	855.
30.	7.62E+04	-1.44E+04	1.34E+05	2.86E+04	1.25E+05	-1.59E+03	1.61E+03
45.	1.68E+05	-7.52E+04	3.00E+05	6.02E+04	2.80E+05	-2.40E+03	2.50E+03
65.	3.28E+05	-2.29E+05	5.57E+05	1.10E+05	5.50E+05	-3.35E+03	3.41E+03

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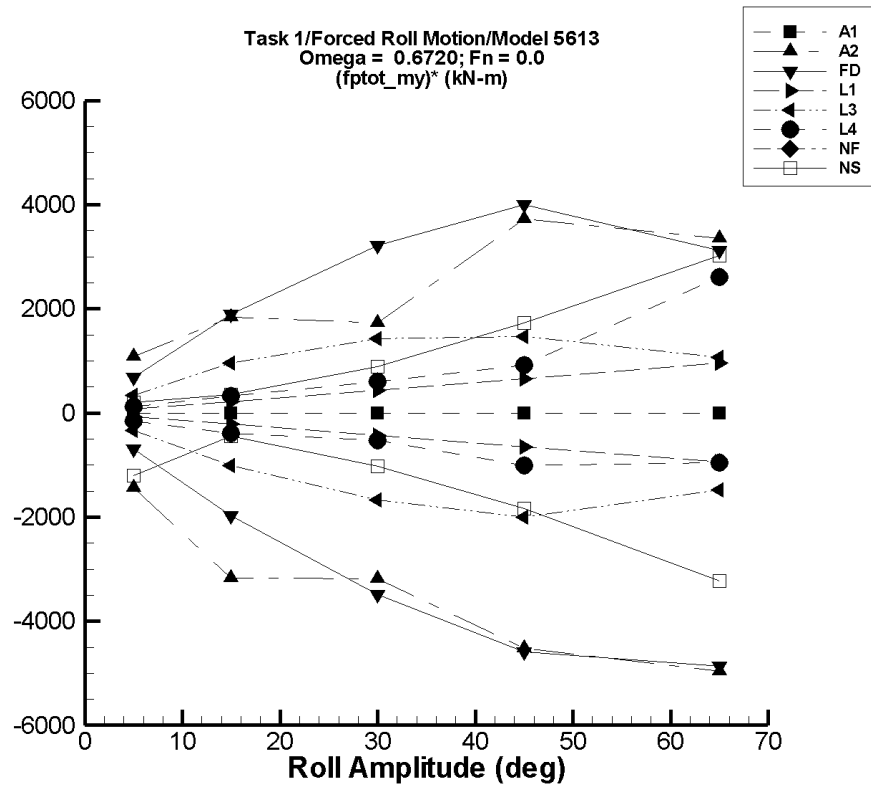


Figure M-33. Minimum and Maximum of  $(M_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M-257. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.72E-04	-4.77E-02	4.61E-02	-4.63E-02	4.55E-02	-9.19E-03	9.18E-03
15.	-1.12E-03	-0.143	0.138	-0.139	0.136	-9.19E-03	9.17E-03
30.	-2.23E-03	-0.286	0.277	-0.278	0.273	-9.19E-03	9.17E-03
45.	-3.35E-03	-0.429	0.415	-0.417	0.409	-9.19E-03	9.17E-03
65.	-4.83E-03	-0.620	0.600	-0.602	0.591	-9.19E-03	9.17E-03

Table M-258. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.2	1.33E+04	120.	1.28E+04	-1.44E+03	1.09E+03
15.	4.87E+04	-37.9	7.75E+04	1.03E+03	7.64E+04	-3.18E+03	1.85E+03
30.	1.02E+05	-36.9	1.56E+05	6.12E+03	1.54E+05	-3.19E+03	1.73E+03
45.	2.13E+05	-20.3	3.86E+05	9.39E+03	3.81E+05	-4.53E+03	3.73E+03
65.	3.36E+05	75.4	5.53E+05	1.35E+04	5.54E+05	-4.96E+03	3.35E+03

Table M-259. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	7.70E+03	4.16E+03	1.12E+04	4.21E+03	1.11E+04	-697.	683.
15.	3.39E+04	4.08E+03	6.26E+04	4.37E+03	6.23E+04	-1.97E+03	1.89E+03
30.	1.09E+05	3.71E+03	2.07E+05	5.01E+03	2.06E+05	-3.48E+03	3.22E+03
45.	2.13E+05	3.05E+03	3.93E+05	6.20E+03	3.93E+05	-4.59E+03	4.00E+03
65.	3.26E+05	1.73E+03	5.34E+05	9.31E+03	5.29E+05	-4.86E+03	3.12E+03

Table M-260. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	341.	-26.9	708.	-21.0	709.	-72.3	73.6
15.	3.07E+03	-241.	6.37E+03	-189.	6.38E+03	-217.	221.
30.	1.23E+04	-966.	2.55E+04	-757.	2.55E+04	-434.	442.
45.	2.76E+04	-2.17E+03	5.74E+04	-1.70E+03	5.74E+04	-651.	662.
65.	5.76E+04	-4.54E+03	1.20E+05	-3.56E+03	1.20E+05	-941.	957.



Table M-261. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	1.02E+03	-638.	2.73E+03	-629.	2.70E+03	-329.	336.
15.	2.02E+04	5.00E+03	3.47E+04	5.03E+03	3.45E+04	-1.01E+03	953.
30.	7.44E+04	2.40E+04	1.18E+05	2.42E+04	1.17E+05	-1.67E+03	1.43E+03
45.	1.46E+05	5.56E+04	2.13E+05	5.64E+04	2.12E+05	-2.00E+03	1.47E+03
65.	2.16E+05	1.18E+05	2.91E+05	1.20E+05	2.86E+05	-1.48E+03	1.07E+03

Table M-262. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	904.	-1.66E+03	1.72E+03	124.	1.49E+03	-156.	117.
15.	1.87E+04	9.65E+03	2.39E+04	1.29E+04	2.36E+04	-384.	328.
30.	6.80E+04	4.15E+04	9.50E+04	5.23E+04	8.60E+04	-525.	600.
45.	1.32E+05	6.42E+04	2.16E+05	8.61E+04	1.73E+05	-1.01E+03	918.
65.	1.87E+05	1.05E+05	4.44E+05	1.26E+05	3.57E+05	-950.	2.61E+03

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Table M-263. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-264. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.29E+03	-7.20E+03	8.77E+03	-3.74E+03	3.27E+03	-1.21E+03	196.
15.	1.91E+04	-3.70E+04	5.23E+04	1.25E+04	2.44E+04	-441.	351.
30.	7.16E+04	-4.84E+04	1.45E+05	4.08E+04	9.81E+04	-1.02E+03	886.
45.	1.59E+05	-1.55E+05	4.39E+05	7.60E+04	2.36E+05	-1.84E+03	1.72E+03
65.	3.16E+05	-5.04E+05	1.10E+06	1.06E+05	5.13E+05	-3.23E+03	3.03E+03

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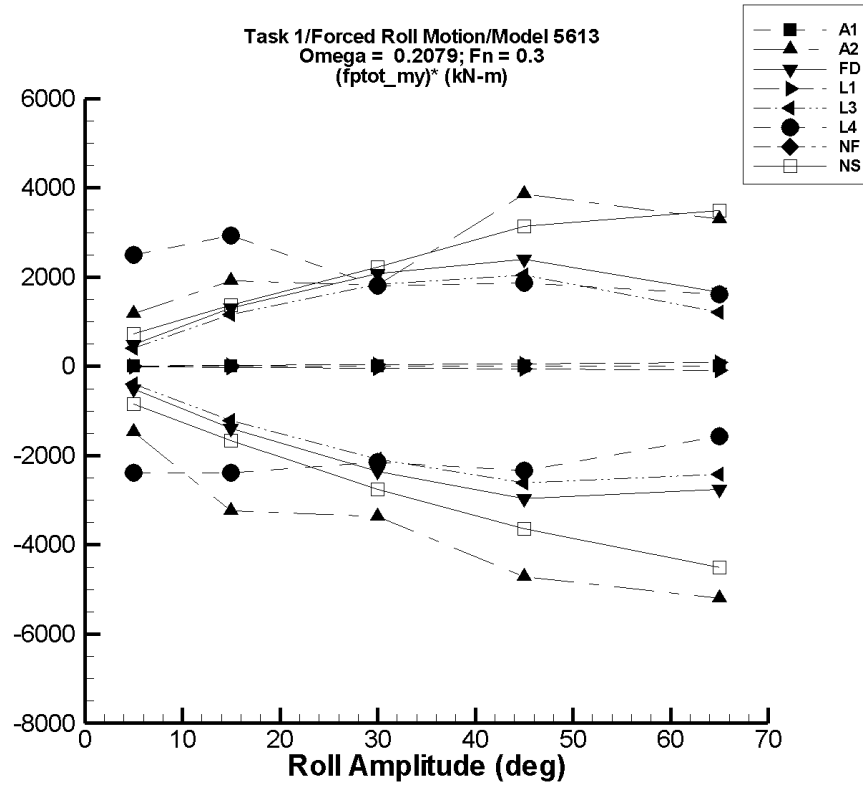


Figure M-34. Minimum and Maximum of  $(M_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-265. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	-6.30E-05	-0.358	0.360	-0.358	0.359	-7.16E-02	7.18E-02
15.	-1.89E-04	-1.07	1.08	-1.07	1.08	-7.16E-02	7.18E-02
30.	-3.78E-04	-2.15	2.16	-2.15	2.15	-7.16E-02	7.18E-02
45.	-5.67E-04	-3.22	3.23	-3.22	3.23	-7.16E-02	7.18E-02
65.	-8.19E-04	-4.66	4.67	-4.65	4.67	-7.16E-02	7.18E-02

Table M-266. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>M_y^{\text{ptot}}</math></b>		<b>Filtered <math>(M_y^{\text{ptot}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	7.33E+03	-38.5	1.33E+04	-69.4	1.32E+04	-1.48E+03	1.18E+03
15.	4.84E+04	-39.1	7.75E+04	-132.	7.71E+04	-3.24E+03	1.91E+03
30.	1.01E+05	-37.5	1.56E+05	430.	1.56E+05	-3.36E+03	1.81E+03
45.	2.13E+05	-28.9	3.87E+05	452.	3.86E+05	-4.71E+03	3.86E+03
65.	3.39E+05	13.1	5.53E+05	344.	5.53E+05	-5.20E+03	3.30E+03

Table M-267. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.70E+03	4.16E+03	9.16E+03	4.18E+03	9.15E+03	-505.	489.
15.	2.50E+04	4.16E+03	4.47E+04	4.22E+03	4.46E+04	-1.39E+03	1.31E+03
30.	7.49E+04	4.09E+03	1.38E+05	4.39E+03	1.37E+05	-2.35E+03	2.08E+03
45.	1.38E+05	3.94E+03	2.46E+05	4.78E+03	2.46E+05	-2.97E+03	2.40E+03
65.	1.85E+05	3.65E+03	2.94E+05	5.46E+03	2.93E+05	-2.76E+03	1.67E+03

Table M-268. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.07E+04	-1.07E+04	-1.06E+04	-1.07E+04	-1.06E+04	-6.78	6.82
15.	-1.04E+04	-1.07E+04	-1.01E+04	-1.07E+04	-1.01E+04	-20.1	20.1
30.	-9.49E+03	-1.07E+04	-8.28E+03	-1.07E+04	-8.28E+03	-40.2	40.2
45.	-7.98E+03	-1.07E+04	-5.26E+03	-1.07E+04	-5.26E+03	-60.3	60.3
65.	-5.02E+03	-1.07E+04	648.	-1.07E+04	641.	-87.0	87.1

Table M-269. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.00E+04	-1.20E+04	-7.94E+03	-1.20E+04	-7.95E+03	-399.	410.
15.	6.76E+03	-1.15E+04	2.42E+04	-1.14E+04	2.42E+04	-1.21E+03	1.16E+03
30.	5.29E+04	-9.64E+03	1.08E+05	-9.53E+03	1.08E+05	-2.08E+03	1.83E+03
45.	1.11E+05	-6.62E+03	2.04E+05	-6.40E+03	2.04E+05	-2.62E+03	2.05E+03
65.	1.57E+05	-713.	2.36E+05	-268.	2.35E+05	-2.42E+03	1.21E+03

Table M-270. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.65E+04	-3.29E+04	9.11E+03	-2.84E+04	-3.96E+03	-2.38E+03	2.50E+03
15.	-6.79E+03	-4.93E+04	5.19E+04	-4.27E+04	3.72E+04	-2.39E+03	2.93E+03
30.	3.51E+04	-5.55E+04	1.03E+05	-2.92E+04	8.94E+04	-2.14E+03	1.81E+03
45.	9.37E+04	-2.98E+04	2.03E+05	-1.13E+04	1.78E+05	-2.33E+03	1.87E+03
65.	1.43E+05	1.93E+04	2.90E+05	4.14E+04	2.48E+05	-1.56E+03	1.62E+03

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Table M-271. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-272. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.72E+03	-2.35E+03	6.81E+03	-1.49E+03	6.38E+03	-842.	731.
15.	2.15E+04	-7.56E+03	4.37E+04	-3.53E+03	4.22E+04	-1.67E+03	1.38E+03
30.	7.79E+04	-1.08E+04	1.46E+05	-4.66E+03	1.45E+05	-2.75E+03	2.23E+03
45.	1.70E+05	-4.73E+04	3.12E+05	6.55E+03	3.11E+05	-3.64E+03	3.13E+03
65.	3.26E+05	-1.08E+05	5.53E+05	3.32E+04	5.53E+05	-4.50E+03	3.49E+03

# TASK 1/ROLL MOTION/MODEL 5613

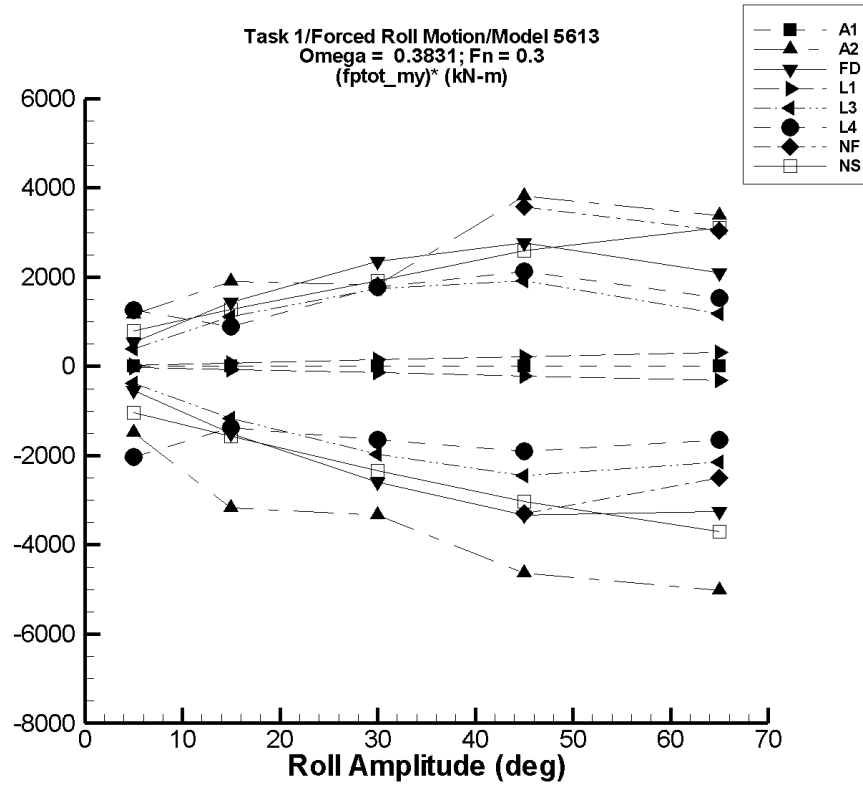


Figure M-35. Minimum and Maximum of  $(M_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.



Table M-273. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.12E-04	-0.725	0.730	-0.722	0.730	-0.144	0.146
15.	9.37E-04	-2.17	2.19	-2.16	2.19	-0.144	0.146
30.	1.87E-03	-4.35	4.38	-4.33	4.38	-0.144	0.146
45.	2.81E-03	-6.52	6.57	-6.49	6.57	-0.144	0.146
65.	4.06E-03	-9.42	9.49	-9.38	9.49	-0.144	0.146

Table M-274. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-39.0	1.33E+04	-110.	1.32E+04	-1.49E+03	1.17E+03
15.	4.84E+04	-40.3	7.75E+04	644.	7.68E+04	-3.18E+03	1.90E+03
30.	1.01E+05	-42.3	1.56E+05	1.19E+03	1.56E+05	-3.33E+03	1.83E+03
45.	2.13E+05	-44.4	3.86E+05	4.09E+03	3.84E+05	-4.63E+03	3.81E+03
65.	3.34E+05	-2.11E+05	5.53E+05	7.84E+03	5.54E+05	-5.02E+03	3.38E+03

Table M-275. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.94E+03	4.16E+03	9.65E+03	4.23E+03	9.61E+03	-543.	533.
15.	2.71E+04	4.10E+03	4.90E+04	4.47E+03	4.87E+04	-1.51E+03	1.44E+03
30.	8.33E+04	3.76E+03	1.54E+05	5.21E+03	1.54E+05	-2.60E+03	2.34E+03
45.	1.56E+05	3.17E+03	2.82E+05	6.44E+03	2.81E+05	-3.33E+03	2.76E+03
65.	2.20E+05	2.00E+03	3.59E+05	8.73E+03	3.56E+05	-3.25E+03	2.09E+03

Table M-276. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.06E+04	-1.07E+04	-1.05E+04	-1.07E+04	-1.05E+04	-23.8	23.8
15.	-9.63E+03	-1.07E+04	-8.55E+03	-1.07E+04	-8.56E+03	-71.2	71.5
30.	-6.42E+03	-1.07E+04	-2.12E+03	-1.07E+04	-2.13E+03	-142.	143.
45.	-1.07E+03	-1.07E+04	8.59E+03	-1.07E+04	8.59E+03	-214.	215.
65.	9.39E+03	-1.08E+04	2.95E+04	-1.07E+04	2.95E+04	-308.	310.

Table M-277. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-9.90E+03	-1.18E+04	-7.94E+03	-1.18E+04	-7.95E+03	-380.	391.
15.	7.51E+03	-9.90E+03	2.42E+04	-9.93E+03	2.41E+04	-1.16E+03	1.11E+03
30.	5.57E+04	-3.48E+03	1.08E+05	-3.55E+03	1.08E+05	-1.98E+03	1.73E+03
45.	1.18E+05	7.21E+03	2.04E+05	7.15E+03	2.04E+05	-2.45E+03	1.91E+03
65.	1.68E+05	2.81E+04	2.46E+05	2.84E+04	2.45E+05	-2.14E+03	1.18E+03

Table M-278. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.65E+04	-3.36E+04	-7.64E+03	-2.66E+04	-1.02E+04	-2.03E+03	1.26E+03
15.	-5.71E+03	-3.63E+04	1.17E+04	-2.64E+04	7.61E+03	-1.38E+03	888.
30.	3.88E+04	-1.60E+04	9.31E+04	-1.08E+04	9.19E+04	-1.65E+03	1.77E+03
45.	1.01E+05	8.28E+03	1.98E+05	1.46E+04	1.96E+05	-1.91E+03	2.13E+03
65.	1.58E+05	4.26E+04	2.75E+05	5.09E+04	2.57E+05	-1.65E+03	1.53E+03

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Table M-279. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	4.28E+03	-1.01E+05	1.05E+05	-9.20E+04	1.01E+05	-3.21E+03	3.22E+03
45.	7.66E+04	-9.13E+04	2.41E+05	-7.22E+04	2.37E+05	-3.31E+03	3.57E+03
65.	1.48E+05	-5.89E+04	3.59E+05	-1.37E+04	3.46E+05	-2.49E+03	3.04E+03

Table M-280. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.78E+03	-4.43E+03	7.65E+03	-2.43E+03	6.72E+03	-1.04E+03	789.
15.	2.18E+04	-1.81E+04	4.35E+04	-1.82E+03	4.09E+04	-1.57E+03	1.28E+03
30.	7.79E+04	-3.16E+04	1.42E+05	7.57E+03	1.36E+05	-2.34E+03	1.92E+03
45.	1.69E+05	-9.41E+04	2.93E+05	3.27E+04	2.85E+05	-3.02E+03	2.59E+03
65.	3.22E+05	-2.51E+05	5.29E+05	8.12E+04	5.24E+05	-3.71E+03	3.11E+03

# TASK 1/ROLL MOTION/MODEL 5613

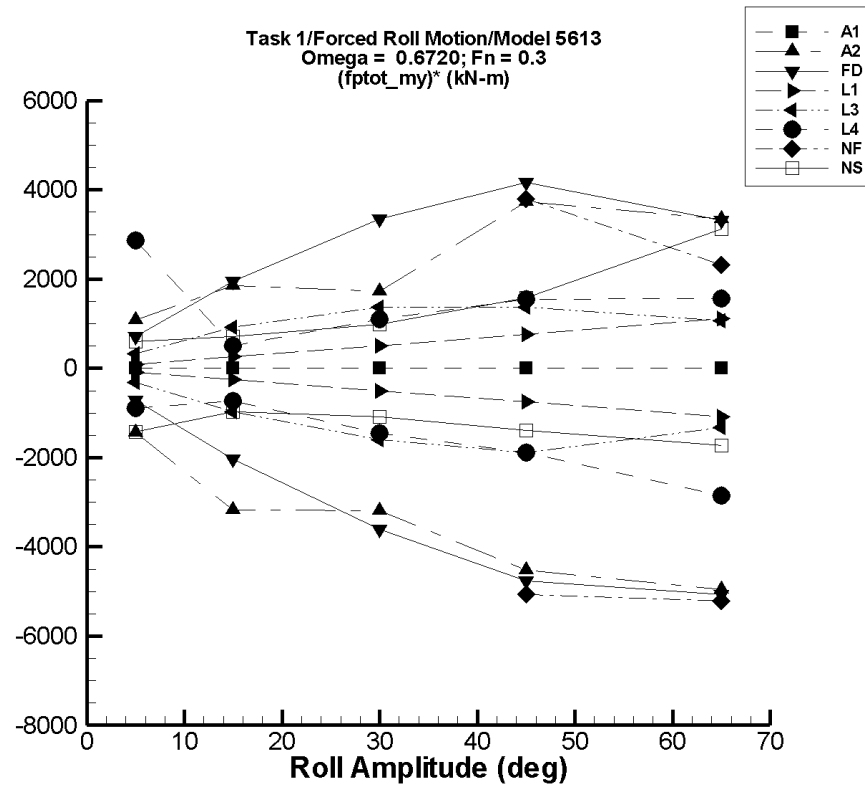


Figure M–36. Minimum and Maximum of  $(M_y^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M-281. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.71E-04	-1.27	1.26	-1.22	1.22	-0.244	0.243
15.	-5.12E-04	-3.80	3.77	-3.65	3.65	-0.243	0.243
30.	-1.02E-03	-7.60	7.54	-7.31	7.30	-0.243	0.243
45.	-1.54E-03	-11.4	11.3	-11.0	11.0	-0.243	0.243
65.	-2.22E-03	-16.5	16.3	-15.8	15.8	-0.243	0.243

Table M-282. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-39.4	1.33E+04	121.	1.28E+04	-1.44E+03	1.09E+03
15.	4.87E+04	-41.4	7.75E+04	1.04E+03	7.64E+04	-3.18E+03	1.85E+03
30.	1.02E+05	-44.0	1.56E+05	6.13E+03	1.54E+05	-3.19E+03	1.73E+03
45.	2.13E+05	-30.9	3.86E+05	9.40E+03	3.81E+05	-4.53E+03	3.73E+03
65.	3.36E+05	60.1	5.53E+05	1.36E+04	5.54E+05	-4.96E+03	3.35E+03

Table M-283. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.92E+03	4.16E+03	1.16E+04	4.32E+03	1.14E+04	-719.	705.
15.	3.58E+04	4.15E+03	6.63E+04	5.32E+03	6.52E+04	-2.03E+03	1.96E+03
30.	1.17E+05	4.07E+03	2.21E+05	8.80E+03	2.17E+05	-3.61E+03	3.34E+03
45.	2.29E+05	3.92E+03	4.23E+05	1.47E+04	4.16E+05	-4.76E+03	4.16E+03
65.	3.57E+05	3.60E+03	5.75E+05	2.71E+04	5.72E+05	-5.07E+03	3.32E+03

Table M-284. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.03E+04	-1.08E+04	-9.91E+03	-1.08E+04	-9.91E+03	-83.9	85.2
15.	-7.47E+03	-1.13E+04	-3.63E+03	-1.12E+04	-3.63E+03	-252.	256.
30.	2.20E+03	-1.31E+04	1.76E+04	-1.29E+04	1.76E+04	-504.	512.
45.	1.83E+04	-1.62E+04	5.29E+04	-1.57E+04	5.29E+04	-755.	768.
65.	4.99E+04	-2.22E+04	1.22E+05	-2.10E+04	1.22E+05	-1.09E+03	1.11E+03

Table M-285. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-9.66E+03	-1.13E+04	-8.00E+03	-1.13E+04	-8.03E+03	-319.	327.
15.	9.67E+03	-5.04E+03	2.37E+04	-5.01E+03	2.35E+04	-978.	921.
30.	6.44E+04	1.59E+04	1.06E+05	1.62E+04	1.05E+05	-1.61E+03	1.36E+03
45.	1.37E+05	5.09E+04	1.99E+05	5.17E+04	1.99E+05	-1.90E+03	1.37E+03
65.	2.08E+05	1.19E+05	2.83E+05	1.22E+05	2.77E+05	-1.33E+03	1.06E+03

Table M-286. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.62E+04	-3.21E+04	2.15E+04	-2.07E+04	-1.90E+03	-897.	2.86E+03
15.	-4.92E+03	-1.92E+04	2.52E+04	-1.59E+04	2.53E+03	-730.	497.
30.	4.41E+04	-2.55E+03	7.77E+04	413.	7.73E+04	-1.46E+03	1.11E+03
45.	1.14E+05	2.12E+04	1.86E+05	2.87E+04	1.84E+05	-1.89E+03	1.55E+03
65.	1.79E+05	-2.83E+04	2.92E+05	-6.37E+03	2.80E+05	-2.85E+03	1.56E+03



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Table M-287. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	3.30E+04	-1.08E+05	1.41E+05	-9.26E+04	1.37E+05	-4.18E+03	3.45E+03
45.	9.92E+04	-1.52E+05	2.77E+05	-1.29E+05	2.70E+05	-5.08E+03	3.80E+03
65.	1.87E+05	-2.85E+05	3.48E+05	-1.52E+05	3.38E+05	-5.21E+03	2.33E+03

Table M-288. Minimum and Maximum of  $M_y^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{ptot}}$		Filtered $M_y^{\text{ptot}}$		Filtered $(M_y^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.62E+03	-8.46E+03	8.59E+03	-4.49E+03	5.65E+03	-1.42E+03	606.
15.	2.05E+04	-4.25E+04	5.49E+04	5.89E+03	3.13E+04	-975.	718.
30.	7.32E+04	-6.15E+04	1.43E+05	4.04E+04	1.03E+05	-1.09E+03	980.
45.	1.56E+05	-1.81E+05	4.07E+05	9.31E+04	2.27E+05	-1.40E+03	1.58E+03
65.	3.02E+05	-5.46E+05	1.06E+06	1.90E+05	5.06E+05	-1.72E+03	3.13E+03

# TASK 1/ROLL MOTION/MODEL 5613

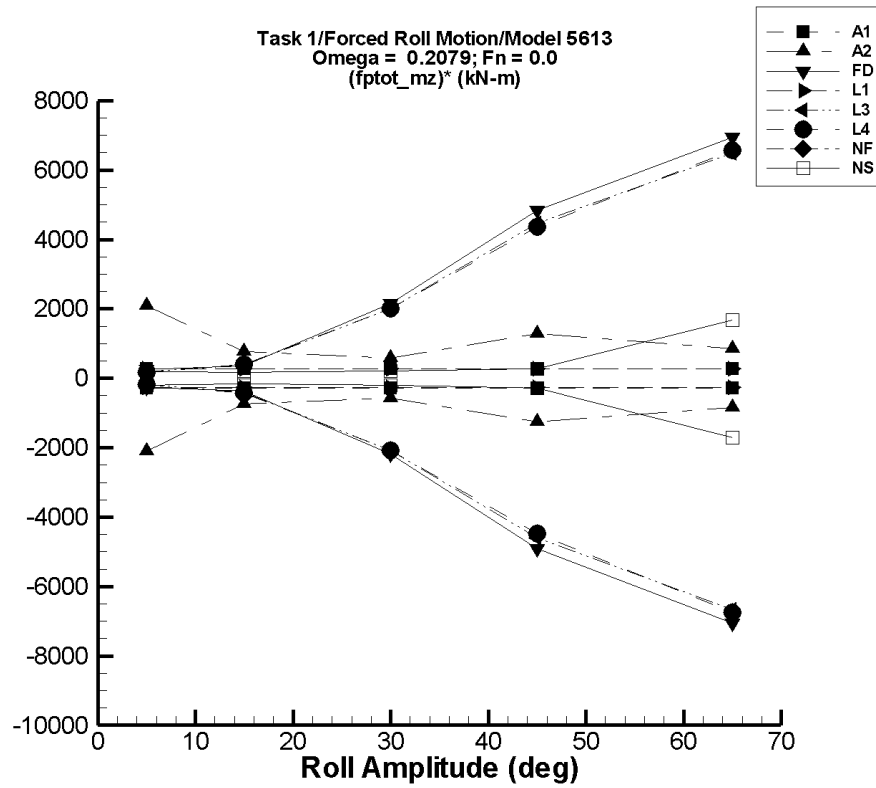


Figure M-37. Minimum and Maximum of  $(M_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M-289. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.29	-1.49E+03	1.49E+03	-1.38E+03	1.39E+03	-276.	278.
15.	-6.86	-4.46E+03	4.46E+03	-4.14E+03	4.15E+03	-276.	277.
30.	-13.7	-8.91E+03	8.92E+03	-8.28E+03	8.31E+03	-276.	277.
45.	-20.6	-1.34E+04	1.34E+04	-1.24E+04	1.25E+04	-276.	277.
65.	-29.8	-1.93E+04	1.93E+04	-1.79E+04	1.80E+04	-276.	277.

Table M-290. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	32.9	-1.05E+04	1.05E+04	-1.05E+04	1.05E+04	-2.11E+03	2.08E+03
15.	-256.	-1.18E+04	1.19E+04	-1.13E+04	1.12E+04	-737.	766.
30.	-161.	-1.97E+04	2.00E+04	-1.72E+04	1.74E+04	-568.	587.
45.	-510.	-6.12E+04	6.35E+04	-5.72E+04	5.73E+04	-1.26E+03	1.28E+03
65.	-186.	-6.24E+04	6.31E+04	-5.49E+04	5.56E+04	-842.	858.

Table M–291. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	4.53	-1.31E+03	1.31E+03	-1.31E+03	1.31E+03	-263.	262.
15.	80.4	-5.48E+03	5.48E+03	-5.45E+03	5.45E+03	-369.	358.
30.	552.	-6.53E+04	6.53E+04	-6.51E+04	6.51E+04	-2.19E+03	2.15E+03
45.	1.70E+03	-2.20E+05	2.20E+05	-2.19E+05	2.19E+05	-4.90E+03	4.83E+03
65.	3.25E+03	-4.56E+05	4.56E+05	-4.55E+05	4.55E+05	-7.05E+03	6.95E+03

Table M–292. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.08E-03	-1.32E+03	1.32E+03	-1.32E+03	1.32E+03	-263.	263.
15.	-6.38E-03	-3.95E+03	3.95E+03	-3.95E+03	3.95E+03	-263.	263.
30.	-2.15E-02	-7.91E+03	7.91E+03	-7.90E+03	7.90E+03	-263.	263.
45.	-3.66E-02	-1.19E+04	1.19E+04	-1.19E+04	1.19E+04	-263.	263.
65.	-8.45E-02	-1.71E+04	1.71E+04	-1.71E+04	1.71E+04	-263.	263.

Table M–293. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered ( $M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	5.54	-921.	921.	-921.	921.	-185.	183.
15.	146.	-5.88E+03	5.88E+03	-5.87E+03	5.87E+03	-401.	382.
30.	1.02E+03	-6.16E+04	6.16E+04	-6.15E+04	6.15E+04	-2.08E+03	2.02E+03
45.	3.15E+03	-2.04E+05	2.04E+05	-2.04E+05	2.04E+05	-4.60E+03	4.46E+03
65.	5.87E+03	-4.27E+05	4.27E+05	-4.27E+05	4.27E+05	-6.66E+03	6.48E+03

Table M–294. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered ( $M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	5.19	-874.	879.	-871.	871.	-175.	173.
15.	144.	-6.20E+03	6.20E+03	-6.19E+03	6.19E+03	-422.	403.
30.	980.	-6.15E+04	6.15E+04	-6.14E+04	6.14E+04	-2.08E+03	2.01E+03
45.	2.98E+03	-1.99E+05	1.99E+05	-1.99E+05	1.99E+05	-4.48E+03	4.35E+03
65.	5.83E+03	-4.34E+05	4.34E+05	-4.33E+05	4.34E+05	-6.76E+03	6.58E+03

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Table M-295. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{ptot}}$		Filtered $M_z^{\text{ptot}}$		Filtered $(M_z^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-296. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{ptot}}$		Filtered $M_z^{\text{ptot}}$		Filtered $(M_z^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-7.94E-03	-993.	993.	-986.	986.	-197.	197.
15.	-2.99E-02	-3.28E+03	3.28E+03	-2.45E+03	2.44E+03	-163.	163.
30.	-3.03E-02	-1.07E+04	1.07E+04	-6.13E+03	6.17E+03	-204.	206.
45.	10.9	-2.73E+04	2.88E+04	-1.25E+04	1.27E+04	-277.	281.
65.	-561.	-1.13E+05	1.09E+05	-1.12E+05	1.09E+05	-1.71E+03	1.68E+03

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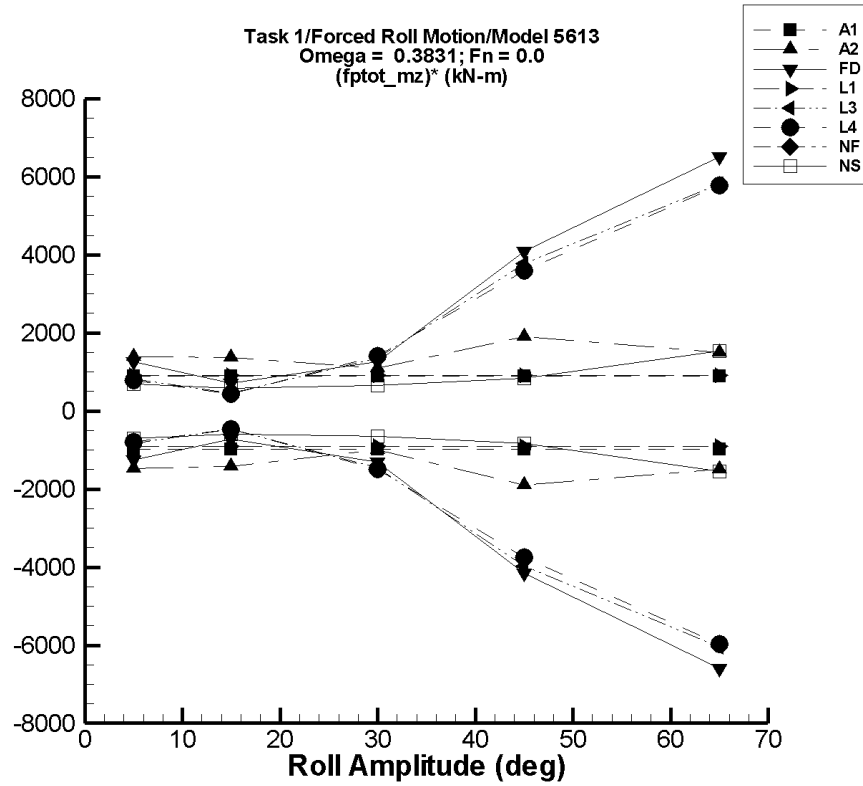


Figure M-38. Minimum and Maximum of  $(M_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M-297. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-11.0	-4.93E+03	4.74E+03	-4.89E+03	4.49E+03	-976.	901.
15.	-33.1	-1.48E+04	1.42E+04	-1.47E+04	1.35E+04	-975.	901.
30.	-66.2	-2.96E+04	2.85E+04	-2.93E+04	2.70E+04	-975.	901.
45.	-99.2	-4.43E+04	4.27E+04	-4.40E+04	4.04E+04	-975.	901.
65.	-143.	-6.40E+04	6.17E+04	-6.35E+04	5.84E+04	-975.	901.

Table M-298. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	21.2	-7.37E+03	6.95E+03	-7.34E+03	6.92E+03	-1.47E+03	1.38E+03
15.	-253.	-2.17E+04	2.17E+04	-2.15E+04	2.04E+04	-1.42E+03	1.37E+03
30.	-247.	-3.62E+04	3.86E+04	-3.02E+04	3.26E+04	-997.	1.09E+03
45.	-576.	-8.94E+04	9.01E+04	-8.57E+04	8.48E+04	-1.89E+03	1.90E+03
65.	752.	-9.75E+04	2.11E+05	-9.61E+04	9.77E+04	-1.49E+03	1.49E+03



Table M–299. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	4.37	-6.31E+03	6.31E+03	-6.29E+03	6.29E+03	-1.26E+03	1.26E+03
15.	82.7	-1.09E+04	1.09E+04	-1.08E+04	1.08E+04	-728.	717.
30.	576.	-3.93E+04	3.93E+04	-3.86E+04	3.86E+04	-1.31E+03	1.27E+03
45.	1.79E+03	-1.88E+05	1.88E+05	-1.85E+05	1.85E+05	-4.16E+03	4.08E+03
65.	2.99E+03	-4.28E+05	4.28E+05	-4.26E+05	4.26E+05	-6.60E+03	6.51E+03

Table M–300. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-5.77E-02	-4.54E+03	4.54E+03	-4.53E+03	4.54E+03	-907.	907.
15.	-0.184	-1.36E+04	1.36E+04	-1.36E+04	1.36E+04	-907.	907.
30.	-0.402	-2.72E+04	2.72E+04	-2.72E+04	2.72E+04	-907.	907.
45.	-0.645	-4.09E+04	4.09E+04	-4.08E+04	4.08E+04	-907.	907.
65.	-1.04	-5.90E+04	5.90E+04	-5.90E+04	5.90E+04	-907.	907.

Table M-301. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	7.57	-4.14E+03	4.14E+03	-4.14E+03	4.14E+03	-829.	826.
15.	199.	-6.91E+03	6.90E+03	-6.88E+03	6.87E+03	-472.	445.
30.	1.39E+03	-4.24E+04	4.23E+04	-4.21E+04	4.21E+04	-1.45E+03	1.36E+03
45.	4.30E+03	-1.75E+05	1.75E+05	-1.74E+05	1.74E+05	-3.97E+03	3.78E+03
65.	7.36E+03	-3.86E+05	3.86E+05	-3.85E+05	3.85E+05	-6.04E+03	5.81E+03

Table M-302. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	3.61	-3.96E+03	3.99E+03	-3.94E+03	3.94E+03	-789.	787.
15.	161.	-7.02E+03	7.05E+03	-6.85E+03	6.66E+03	-467.	433.
30.	1.17E+03	-4.40E+04	4.39E+04	-4.37E+04	4.36E+04	-1.50E+03	1.41E+03
45.	3.38E+03	-1.68E+05	1.66E+05	-1.66E+05	1.65E+05	-3.76E+03	3.60E+03
65.	5.76E+03	-3.85E+05	3.82E+05	-3.82E+05	3.81E+05	-5.97E+03	5.78E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-303. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{ptot}}$		Filtered $M_z^{\text{ptot}}$		Filtered $(M_z^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-304. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{ptot}}$		Filtered $M_z^{\text{ptot}}$		Filtered $(M_z^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.52E-02	-3.52E+03	3.53E+03	-3.49E+03	3.50E+03	-698.	700.
15.	0.199	-1.13E+04	1.13E+04	-8.78E+03	8.80E+03	-585.	586.
30.	0.697	-3.42E+04	3.41E+04	-1.95E+04	1.94E+04	-648.	647.
45.	18.6	-9.24E+04	9.16E+04	-3.71E+04	3.76E+04	-824.	836.
65.	227.	-2.10E+05	2.23E+05	-9.98E+04	1.01E+05	-1.54E+03	1.54E+03

# Task 1/ROLL MOTION/MODEL 5613

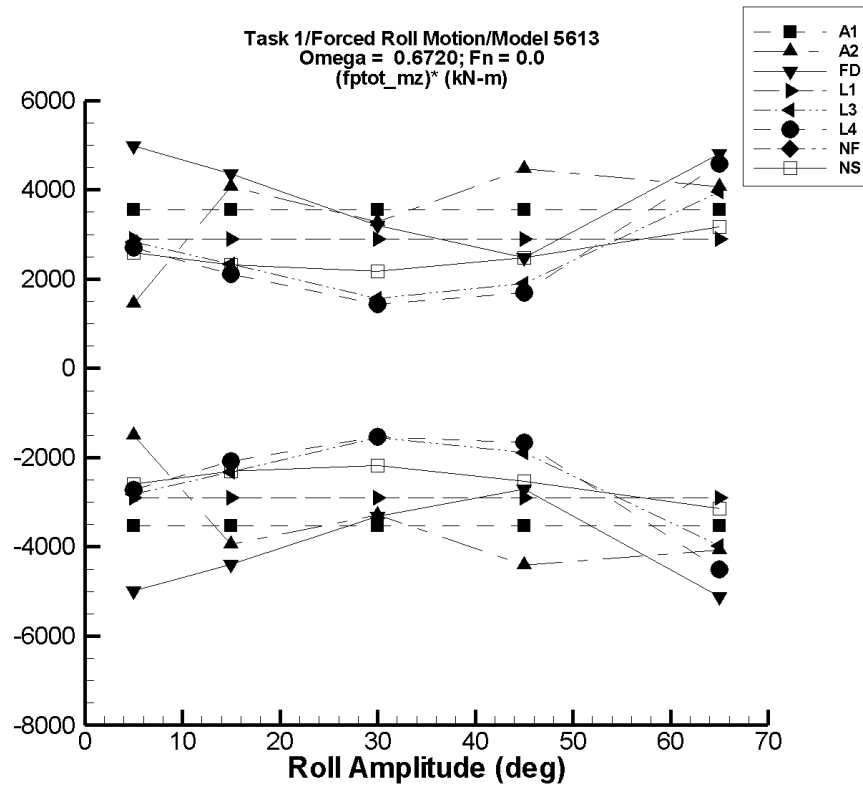


Figure M-39. Minimum and Maximum of  $(M_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M-305. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-22.8	-1.79E+04	1.80E+04	-1.76E+04	1.78E+04	-3.52E+03	3.56E+03
15.	-68.4	-5.35E+04	5.39E+04	-5.29E+04	5.32E+04	-3.52E+03	3.55E+03
30.	-137.	-1.07E+05	1.08E+05	-1.06E+05	1.06E+05	-3.52E+03	3.55E+03
45.	-205.	-1.61E+05	1.62E+05	-1.59E+05	1.60E+05	-3.52E+03	3.55E+03
65.	-297.	-2.32E+05	2.34E+05	-2.29E+05	2.31E+05	-3.52E+03	3.55E+03

Table M-306. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	62.0	-8.78E+03	8.62E+03	-7.47E+03	7.36E+03	-1.51E+03	1.46E+03
15.	-639.	-6.03E+04	6.06E+04	-5.99E+04	6.03E+04	-3.95E+03	4.06E+03
30.	35.7	-1.06E+05	1.07E+05	-9.83E+04	9.84E+04	-3.28E+03	3.28E+03
45.	-909.	-2.05E+05	2.04E+05	-1.99E+05	2.00E+05	-4.41E+03	4.47E+03
65.	490.	-2.67E+05	2.68E+05	-2.64E+05	2.65E+05	-4.08E+03	4.07E+03

Table M–307. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	11.7	-2.53E+04	2.53E+04	-2.50E+04	2.50E+04	-5.00E+03	4.99E+03
15.	242.	-6.62E+04	6.63E+04	-6.56E+04	6.56E+04	-4.39E+03	4.36E+03
30.	1.69E+03	-1.01E+05	1.01E+05	-9.77E+04	9.76E+04	-3.31E+03	3.20E+03
45.	5.27E+03	-1.25E+05	1.25E+05	-1.17E+05	1.17E+05	-2.71E+03	2.48E+03
65.	9.84E+03	-3.31E+05	3.31E+05	-3.23E+05	3.23E+05	-5.12E+03	4.81E+03

Table M–308. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-0.223	-1.46E+04	1.46E+04	-1.45E+04	1.45E+04	-2.90E+03	2.90E+03
15.	-0.704	-4.37E+04	4.37E+04	-4.36E+04	4.36E+04	-2.90E+03	2.90E+03
30.	-1.55	-8.75E+04	8.75E+04	-8.71E+04	8.71E+04	-2.90E+03	2.90E+03
45.	-2.49	-1.31E+05	1.31E+05	-1.31E+05	1.31E+05	-2.90E+03	2.90E+03
65.	-3.95	-1.90E+05	1.90E+05	-1.89E+05	1.89E+05	-2.90E+03	2.90E+03

Table M–309. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-0.439	-1.42E+04	1.42E+04	-1.41E+04	1.41E+04	-2.83E+03	2.83E+03
15.	-2.57	-3.49E+04	3.49E+04	-3.47E+04	3.50E+04	-2.32E+03	2.33E+03
30.	-8.65	-4.75E+04	4.74E+04	-4.68E+04	4.68E+04	-1.56E+03	1.56E+03
45.	-18.7	-8.71E+04	8.71E+04	-8.53E+04	8.52E+04	-1.89E+03	1.89E+03
65.	788.	-2.59E+05	2.59E+05	-2.58E+05	2.58E+05	-3.98E+03	3.96E+03

Table M–310. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-55.5	-1.38E+04	1.38E+04	-1.36E+04	1.35E+04	-2.72E+03	2.70E+03
15.	-349.	-3.23E+04	3.25E+04	-3.17E+04	3.13E+04	-2.09E+03	2.11E+03
30.	-1.13E+03	-4.90E+04	4.84E+04	-4.73E+04	4.18E+04	-1.54E+03	1.43E+03
45.	-2.26E+03	-8.48E+04	7.50E+04	-7.70E+04	7.37E+04	-1.66E+03	1.69E+03
65.	-4.63E+03	-3.22E+05	2.99E+05	-2.98E+05	2.93E+05	-4.51E+03	4.58E+03

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Table M-311. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{ptot}}$		Filtered $M_z^{\text{ptot}}$		Filtered $(M_z^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-312. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{ptot}}$		Filtered $M_z^{\text{ptot}}$		Filtered $(M_z^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.853	-1.31E+04	1.32E+04	-1.30E+04	1.30E+04	-2.59E+03	2.60E+03
15.	-3.39	-4.26E+04	4.26E+04	-3.47E+04	3.49E+04	-2.31E+03	2.33E+03
30.	-10.5	-1.12E+05	1.12E+05	-6.55E+04	6.50E+04	-2.18E+03	2.17E+03
45.	25.1	-2.93E+05	2.55E+05	-1.14E+05	1.12E+05	-2.53E+03	2.48E+03
65.	83.5	-6.22E+05	6.40E+05	-2.04E+05	2.06E+05	-3.14E+03	3.17E+03



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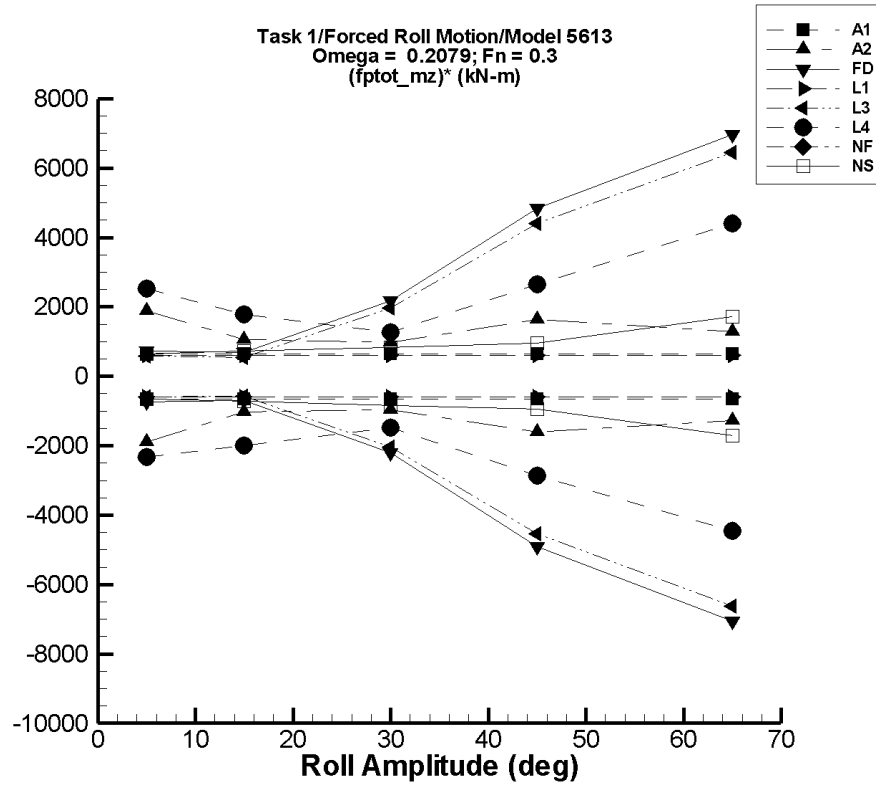


Figure M-40. Minimum and Maximum of  $(M_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-313. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.19	-3.30E+03	3.36E+03	-3.24E+03	3.25E+03	-647.	649.
15.	-3.56	-9.89E+03	1.01E+04	-9.70E+03	9.73E+03	-647.	649.
30.	-7.12	-1.98E+04	2.01E+04	-1.94E+04	1.95E+04	-647.	649.
45.	-10.7	-2.97E+04	3.02E+04	-2.91E+04	2.92E+04	-647.	649.
65.	-15.4	-4.28E+04	4.36E+04	-4.21E+04	4.22E+04	-647.	649.

Table M-314. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered $(M_z^{\text{ptot}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	36.0	-9.50E+03	9.50E+03	-9.48E+03	9.50E+03	-1.90E+03	1.89E+03
15.	-252.	-1.65E+04	1.64E+04	-1.57E+04	1.57E+04	-1.03E+03	1.06E+03
30.	-154.	-3.17E+04	3.20E+04	-2.91E+04	2.94E+04	-966.	985.
45.	-500.	-7.71E+04	7.81E+04	-7.28E+04	7.28E+04	-1.61E+03	1.63E+03
65.	-172.	-9.07E+04	9.09E+04	-8.30E+04	8.32E+04	-1.27E+03	1.28E+03

Table M–315. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	4.46	-3.65E+03	3.65E+03	-3.65E+03	3.65E+03	-730.	729.
15.	78.5	-1.04E+04	1.04E+04	-1.04E+04	1.04E+04	-699.	689.
30.	537.	-6.58E+04	6.58E+04	-6.56E+04	6.56E+04	-2.21E+03	2.17E+03
45.	1.66E+03	-2.20E+05	2.20E+05	-2.19E+05	2.19E+05	-4.91E+03	4.83E+03
65.	3.11E+03	-4.56E+05	4.56E+05	-4.55E+05	4.55E+05	-7.05E+03	6.96E+03

Table M–316. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-1.78	-3.00E+03	3.00E+03	-3.00E+03	3.00E+03	-600.	600.
15.	-1.78	-9.00E+03	9.00E+03	-9.00E+03	9.00E+03	-600.	600.
30.	-1.79	-1.80E+04	1.80E+04	-1.80E+04	1.80E+04	-600.	600.
45.	-1.79	-2.70E+04	2.70E+04	-2.70E+04	2.70E+04	-600.	600.
65.	-1.87	-3.90E+04	3.90E+04	-3.90E+04	3.90E+04	-600.	600.

Table M-317. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	3.76	-2.94E+03	2.94E+03	-2.94E+03	2.93E+03	-588.	586.
15.	144.	-8.39E+03	8.39E+03	-8.38E+03	8.38E+03	-569.	549.
30.	1.01E+03	-6.04E+04	6.04E+04	-6.03E+04	6.03E+04	-2.04E+03	1.98E+03
45.	3.15E+03	-2.02E+05	2.02E+05	-2.01E+05	2.01E+05	-4.55E+03	4.41E+03
65.	5.87E+03	-4.25E+05	4.25E+05	-4.24E+05	4.24E+05	-6.62E+03	6.44E+03

Table M-318. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-559.	-2.25E+04	1.35E+04	-1.22E+04	1.21E+04	-2.32E+03	2.52E+03
15.	-1.97E+03	-5.95E+04	4.45E+04	-3.21E+04	2.47E+04	-2.01E+03	1.78E+03
30.	-2.17E+03	-1.15E+05	1.33E+05	-4.64E+04	3.61E+04	-1.47E+03	1.27E+03
45.	-1.25E+03	-1.83E+05	2.12E+05	-1.30E+05	1.18E+05	-2.86E+03	2.65E+03
65.	21.0	-3.01E+05	3.16E+05	-2.89E+05	2.87E+05	-4.45E+03	4.41E+03

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Table M–319. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{ptot}}$		Filtered $M_z^{\text{ptot}}$		Filtered $(M_z^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–320. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{ptot}}$		Filtered $M_z^{\text{ptot}}$		Filtered $(M_z^{\text{ptot}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.15E-02	-3.38E+03	3.38E+03	-3.25E+03	3.25E+03	-651.	651.
15.	-4.51E-02	-1.24E+04	1.24E+04	-1.08E+04	1.08E+04	-721.	720.
30.	0.119	-3.05E+04	3.05E+04	-2.52E+04	2.52E+04	-839.	839.
45.	21.1	-5.60E+04	5.97E+04	-4.24E+04	4.26E+04	-942.	946.
65.	212.	-1.11E+05	1.13E+05	-1.11E+05	1.12E+05	-1.71E+03	1.72E+03

# TASK 1/ROLL MOTION/MODEL 5613

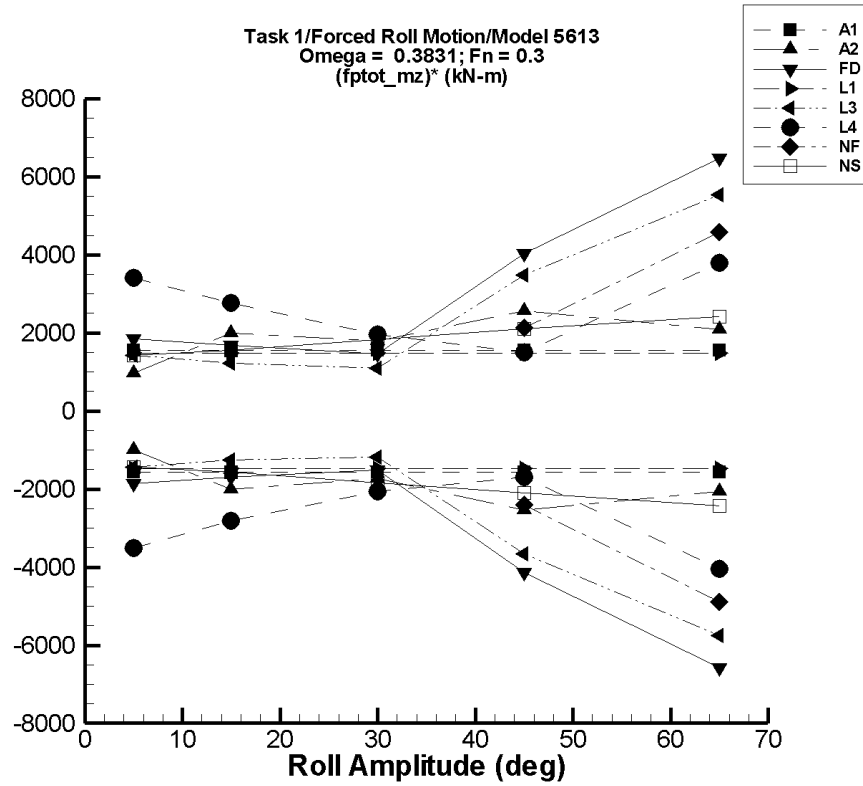


Figure M-41. Minimum and Maximum of  $(M_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–321. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-4.25	-7.85E+03	8.37E+03	-7.81E+03	7.79E+03	-1.56E+03	1.56E+03
15.	-12.8	-2.35E+04	2.51E+04	-2.34E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-25.5	-4.71E+04	5.02E+04	-4.69E+04	4.67E+04	-1.56E+03	1.56E+03
45.	-38.2	-7.06E+04	7.53E+04	-7.03E+04	7.01E+04	-1.56E+03	1.56E+03
65.	-55.2	-1.02E+05	1.09E+05	-1.02E+05	1.01E+05	-1.56E+03	1.56E+03

Table M–322. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	28.0	-5.42E+03	4.92E+03	-4.92E+03	4.88E+03	-989.	971.
15.	-233.	-3.11E+04	3.26E+04	-3.03E+04	2.98E+04	-2.00E+03	2.00E+03
30.	-206.	-5.84E+04	5.96E+04	-5.24E+04	5.36E+04	-1.74E+03	1.79E+03
45.	-515.	-1.18E+05	1.20E+05	-1.15E+05	1.15E+05	-2.55E+03	2.57E+03
65.	754.	-1.41E+05	2.18E+05	-1.33E+05	1.36E+05	-2.06E+03	2.08E+03

Table M-323. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	4.67	-9.31E+03	9.31E+03	-9.28E+03	9.28E+03	-1.86E+03	1.85E+03
15.	90.9	-2.55E+04	2.55E+04	-2.52E+04	2.52E+04	-1.69E+03	1.68E+03
30.	641.	-4.56E+04	4.56E+04	-4.48E+04	4.48E+04	-1.51E+03	1.47E+03
45.	2.00E+03	-1.86E+05	1.86E+05	-1.84E+05	1.84E+05	-4.13E+03	4.04E+03
65.	3.60E+03	-4.27E+05	4.27E+05	-4.25E+05	4.24E+05	-6.59E+03	6.47E+03

Table M-324. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-1.85	-7.38E+03	7.37E+03	-7.37E+03	7.36E+03	-1.47E+03	1.47E+03
15.	-1.89	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	-1.92	-4.43E+04	4.43E+04	-4.42E+04	4.42E+04	-1.47E+03	1.47E+03
45.	-1.96	-6.64E+04	6.64E+04	-6.63E+04	6.63E+04	-1.47E+03	1.47E+03
65.	-2.12	-9.59E+04	9.59E+04	-9.58E+04	9.58E+04	-1.47E+03	1.47E+03



Table M-325. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	5.84	-7.16E+03	7.16E+03	-7.15E+03	7.15E+03	-1.43E+03	1.43E+03
15.	198.	-1.86E+04	1.86E+04	-1.86E+04	1.86E+04	-1.25E+03	1.22E+03
30.	1.39E+03	-3.43E+04	3.43E+04	-3.41E+04	3.41E+04	-1.18E+03	1.09E+03
45.	4.30E+03	-1.61E+05	1.61E+05	-1.61E+05	1.61E+05	-3.67E+03	3.48E+03
65.	7.36E+03	-3.67E+05	3.67E+05	-3.67E+05	3.67E+05	-5.75E+03	5.53E+03

Table M-326. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	149.	-1.91E+04	1.90E+04	-1.74E+04	1.72E+04	-3.51E+03	3.42E+03
15.	280.	-4.38E+04	4.38E+04	-4.20E+04	4.19E+04	-2.82E+03	2.77E+03
30.	1.50E+03	-6.13E+04	6.15E+04	-6.02E+04	6.03E+04	-2.06E+03	1.96E+03
45.	4.21E+03	-7.47E+04	7.44E+04	-7.19E+04	7.17E+04	-1.69E+03	1.50E+03
65.	7.84E+03	-2.64E+05	2.61E+05	-2.55E+05	2.55E+05	-4.04E+03	3.80E+03

Table M-327. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-1.68E+03	-4.94E+04	4.59E+04	-4.50E+04	4.31E+04	-1.44E+03	1.49E+03
45.	-414.	-1.14E+05	1.01E+05	-1.09E+05	9.55E+04	-2.41E+03	2.13E+03
65.	541.	-3.24E+05	3.04E+05	-3.17E+05	2.98E+05	-4.89E+03	4.58E+03

Table M-328. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-2.86E-02	-7.52E+03	7.52E+03	-7.15E+03	7.14E+03	-1.43E+03	1.43E+03
15.	-0.140	-2.82E+04	2.81E+04	-2.35E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-1.56E-02	-7.14E+04	7.14E+04	-5.52E+04	5.51E+04	-1.84E+03	1.84E+03
45.	36.4	-1.39E+05	1.50E+05	-9.40E+04	9.46E+04	-2.09E+03	2.10E+03
65.	229.	-2.92E+05	2.85E+05	-1.58E+05	1.57E+05	-2.43E+03	2.42E+03

# Task 1/ROLL MOTION/MODEL 5613

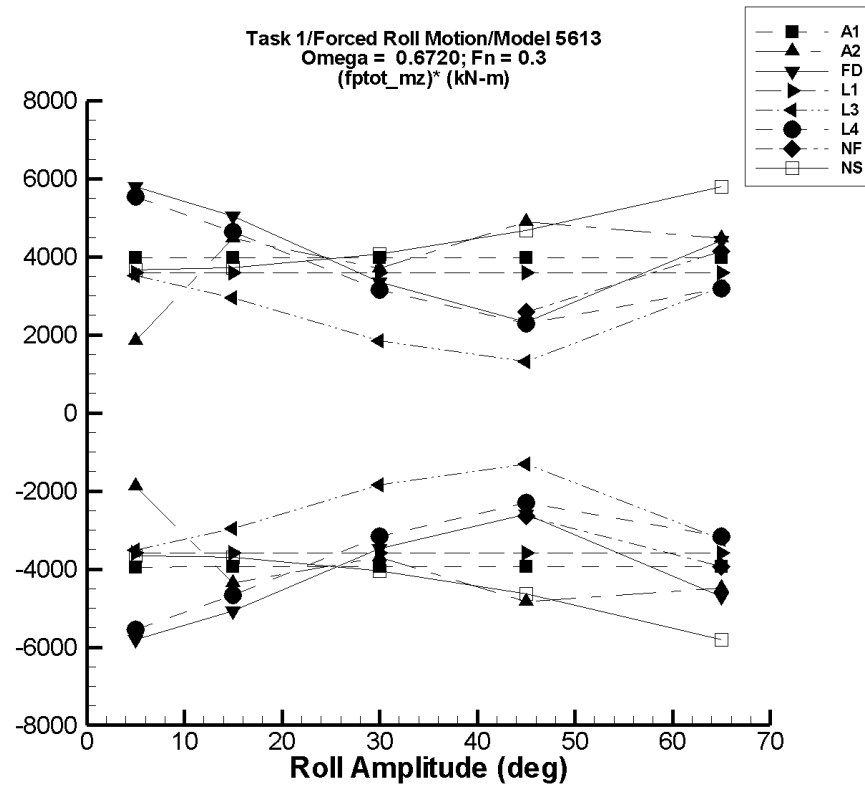


Figure M-42. Minimum and Maximum of  $(M_z^{ptot})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–329. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-21.2	-2.00E+04	2.01E+04	-1.97E+04	1.98E+04	-3.94E+03	3.97E+03
15.	-63.5	-5.99E+04	6.03E+04	-5.92E+04	5.95E+04	-3.94E+03	3.97E+03
30.	-127.	-1.20E+05	1.21E+05	-1.18E+05	1.19E+05	-3.94E+03	3.97E+03
45.	-191.	-1.80E+05	1.81E+05	-1.78E+05	1.78E+05	-3.94E+03	3.97E+03
65.	-275.	-2.60E+05	2.61E+05	-2.57E+05	2.58E+05	-3.94E+03	3.97E+03

Table M–330. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	63.6	-1.06E+04	1.05E+04	-9.37E+03	9.28E+03	-1.89E+03	1.84E+03
15.	-634.	-6.68E+04	6.70E+04	-6.61E+04	6.65E+04	-4.37E+03	4.47E+03
30.	45.5	-1.19E+05	1.19E+05	-1.11E+05	1.11E+05	-3.70E+03	3.70E+03
45.	-894.	-2.24E+05	2.23E+05	-2.18E+05	2.19E+05	-4.83E+03	4.89E+03
65.	511.	-2.94E+05	2.96E+05	-2.91E+05	2.92E+05	-4.49E+03	4.48E+03

Table M–331. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	12.5	-2.93E+04	2.93E+04	-2.90E+04	2.90E+04	-5.80E+03	5.80E+03
15.	262.	-7.65E+04	7.65E+04	-7.58E+04	7.59E+04	-5.07E+03	5.04E+03
30.	1.85E+03	-1.05E+05	1.05E+05	-1.02E+05	1.03E+05	-3.48E+03	3.36E+03
45.	5.79E+03	-1.19E+05	1.19E+05	-1.11E+05	1.10E+05	-2.59E+03	2.33E+03
65.	1.13E+04	-3.03E+05	3.03E+05	-2.94E+05	2.98E+05	-4.70E+03	4.41E+03

Table M–332. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-1.90	-1.80E+04	1.80E+04	-1.79E+04	1.79E+04	-3.58E+03	3.58E+03
15.	-1.96	-5.40E+04	5.40E+04	-5.37E+04	5.37E+04	-3.58E+03	3.58E+03
30.	-2.14	-1.08E+05	1.08E+05	-1.07E+05	1.07E+05	-3.58E+03	3.58E+03
45.	-2.38	-1.62E+05	1.62E+05	-1.61E+05	1.61E+05	-3.58E+03	3.58E+03
65.	-2.83	-2.34E+05	2.34E+05	-2.33E+05	2.33E+05	-3.58E+03	3.58E+03

Table M-333. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-2.20	-1.76E+04	1.76E+04	-1.76E+04	1.76E+04	-3.51E+03	3.51E+03
15.	-3.95	-4.44E+04	4.44E+04	-4.43E+04	4.43E+04	-2.95E+03	2.95E+03
30.	-9.35	-5.59E+04	5.59E+04	-5.53E+04	5.53E+04	-1.84E+03	1.85E+03
45.	-18.8	-6.09E+04	6.09E+04	-5.90E+04	5.90E+04	-1.31E+03	1.31E+03
65.	788.	-2.11E+05	2.11E+05	-2.10E+05	2.10E+05	-3.25E+03	3.22E+03

Table M-334. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	98.2	-2.85E+04	2.85E+04	-2.77E+04	2.78E+04	-5.56E+03	5.53E+03
15.	148.	-7.11E+04	7.12E+04	-6.98E+04	6.98E+04	-4.66E+03	4.65E+03
30.	180.	-9.60E+04	9.63E+04	-9.49E+04	9.49E+04	-3.17E+03	3.16E+03
45.	196.	-1.06E+05	1.06E+05	-1.03E+05	1.03E+05	-2.29E+03	2.29E+03
65.	-591.	-2.20E+05	2.19E+05	-2.06E+05	2.06E+05	-3.16E+03	3.18E+03

Table M-335. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-1.15E+03	-1.12E+05	1.02E+05	-1.07E+05	9.32E+04	-3.52E+03	3.14E+03
45.	-3.92E+03	-1.40E+05	1.35E+05	-1.23E+05	1.12E+05	-2.64E+03	2.58E+03
65.	-658.	-2.62E+05	2.83E+05	-2.56E+05	2.69E+05	-3.93E+03	4.15E+03

Table M-336. Minimum and Maximum of  $M_z^{\text{ptot}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{ptot}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_z^{\text{ptot}})^*$ Max. (kN-m/°)
5.	-2.32	-1.90E+04	1.91E+04	-1.83E+04	1.83E+04	-3.66E+03	3.66E+03
15.	-8.16	-6.67E+04	6.69E+04	-5.56E+04	5.57E+04	-3.70E+03	3.71E+03
30.	-19.3	-1.71E+05	1.72E+05	-1.21E+05	1.22E+05	-4.04E+03	4.07E+03
45.	40.2	-3.52E+05	3.77E+05	-2.08E+05	2.11E+05	-4.63E+03	4.68E+03
65.	33.4	-7.19E+05	7.50E+05	-3.77E+05	3.77E+05	-5.80E+03	5.80E+03

# TASK 1/ROLL MOTION/MODEL 5613

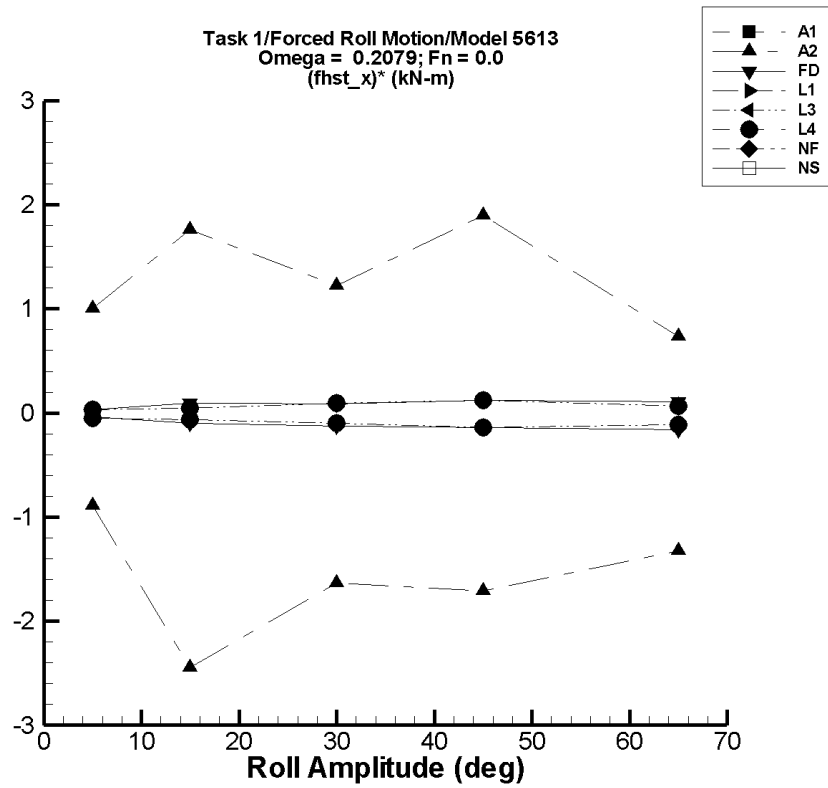


Figure M-43. Minimum and Maximum of  $(F_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.



Table M–337. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–338. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.28E-02	9.66	0.127	9.58	-0.890	1.00
15.	39.4	-4.04E-02	67.0	2.72	65.8	-2.45	1.76
30.	52.1	-5.33E-02	101.	3.14	88.9	-1.63	1.23
45.	79.5	-4.16E-02	177.	2.71	165.	-1.71	1.90
65.	88.7	-317.	177.	2.64	136.	-1.32	0.735

TASK 1/ROLL MOTION/MODEL 5613

Table M-339. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.84	-8.50	-3.67E-02	3.08E-02
15.	-7.39	-8.84	-5.98	-8.82	-5.98	-9.54E-02	9.35E-02
30.	-5.10	-8.84	-2.55	-8.80	-2.56	-0.123	8.46E-02
45.	-2.40	-8.84	3.06	-8.80	3.02	-0.142	0.120
65.	1.74	-8.84	8.60	-8.82	8.56	-0.162	0.105

Table M-340. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-341. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.06E-02	3.00E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.56E-02	4.72E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.33E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.124
65.	-31.7	-39.2	-27.3	-39.1	-27.4	-0.114	6.59E-02

Table M-342. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.06E-02	3.00E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.56E-02	4.72E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.33E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.124
65.	-31.7	-39.2	-27.3	-39.1	-27.4	-0.114	6.59E-02

# TASK 1/ROLL MOTION/MODEL 5613

Table M–343. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–344. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

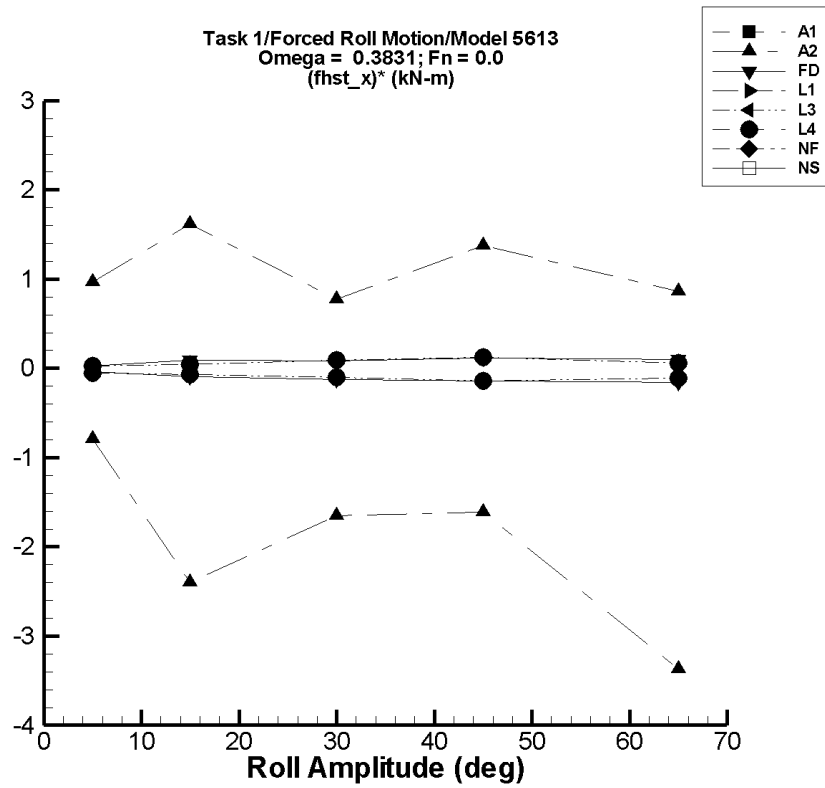


Figure M-44. Minimum and Maximum of  $(F_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-345. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-346. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.32E-02	9.66	0.611	9.43	-0.794	0.969
15.	39.4	-5.34E-02	67.0	3.38	63.6	-2.40	1.62
30.	52.1	-1.21E-02	101.	2.62	75.4	-1.65	0.777
45.	79.5	6.19E-02	177.	6.86	142.	-1.61	1.38
65.	80.3	-1.26E+03	177.	-139.	136.	-3.37	0.862

TASK 1/ROLL MOTION/MODEL 5613

Table M-347. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.83	-8.50	-3.41E-02	3.07E-02
15.	-7.38	-8.84	-5.98	-8.81	-6.00	-9.55E-02	9.24E-02
30.	-5.09	-8.84	-2.55	-8.80	-2.58	-0.123	8.38E-02
45.	-2.39	-8.83	3.05	-8.72	2.91	-0.141	0.118
65.	1.77	-8.82	8.60	-8.50	8.50	-0.158	0.104

Table M-348. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-349. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-4.97E-02	3.05E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.51E-02	4.71E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.36E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.123
65.	-31.8	-39.2	-27.3	-39.1	-27.9	-0.111	6.14E-02

Table M-350. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-4.97E-02	3.05E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.51E-02	4.71E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.36E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.123
65.	-31.8	-39.2	-27.3	-39.1	-27.9	-0.111	6.14E-02



# TASK 1/ROLL MOTION/MODEL 5613

Table M–351. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–352. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

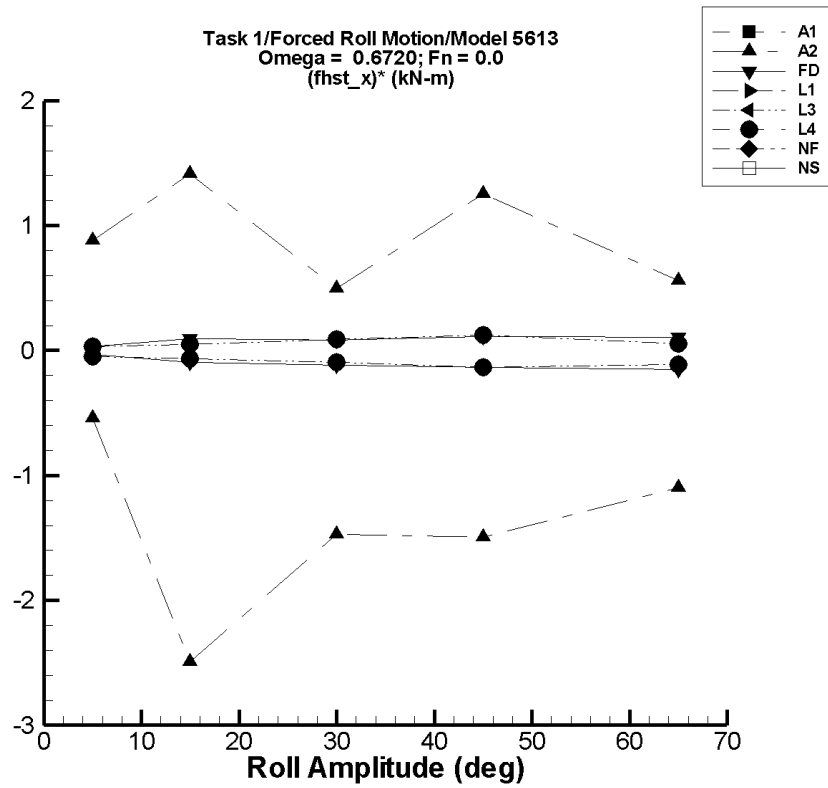


Figure M-45. Minimum and Maximum of  $(F_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–353. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_x^{\text{hst}}</math></b>		<b>Filtered <math>F_x^{\text{hst}}</math></b>		<b>Filtered <math>(F_x^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–354. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_x^{\text{hst}}</math></b>		<b>Filtered <math>F_x^{\text{hst}}</math></b>		<b>Filtered <math>(F_x^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	4.48	-5.34E-02	9.65	1.77	8.87	-0.542	0.879
15.	39.9	1.45E-02	67.0	2.54	61.1	-2.49	1.41
30.	52.5	0.249	101.	8.35	67.4	-1.47	0.497
45.	80.1	-1.93E-02	177.	12.7	136.	-1.50	1.25
65.	87.4	-152.	177.	15.8	124.	-1.10	0.559

Table M-355. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.66	-8.84	-8.50	-8.82	-8.50	-3.23E-02	3.07E-02
15.	-7.39	-8.84	-5.98	-8.79	-6.00	-9.32E-02	9.24E-02
30.	-5.11	-8.84	-2.55	-8.71	-2.58	-0.120	8.44E-02
45.	-2.39	-8.83	3.05	-8.45	2.72	-0.135	0.114
65.	1.70	-8.85	8.60	-8.04	8.51	-0.150	0.105

Table M-356. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–357. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.1	-38.8	-4.89E-02	3.03E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.36E-02	4.63E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.74E-02	9.15E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.137	0.124
65.	-31.8	-39.2	-27.3	-39.0	-28.3	-0.110	5.50E-02

Table M–358. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.1	-38.8	-4.89E-02	3.03E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.36E-02	4.63E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.74E-02	9.15E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.137	0.124
65.	-31.8	-39.2	-27.3	-39.0	-28.3	-0.110	5.50E-02

# TASK 1/ROLL MOTION/MODEL 5613

Table M–359. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–360. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

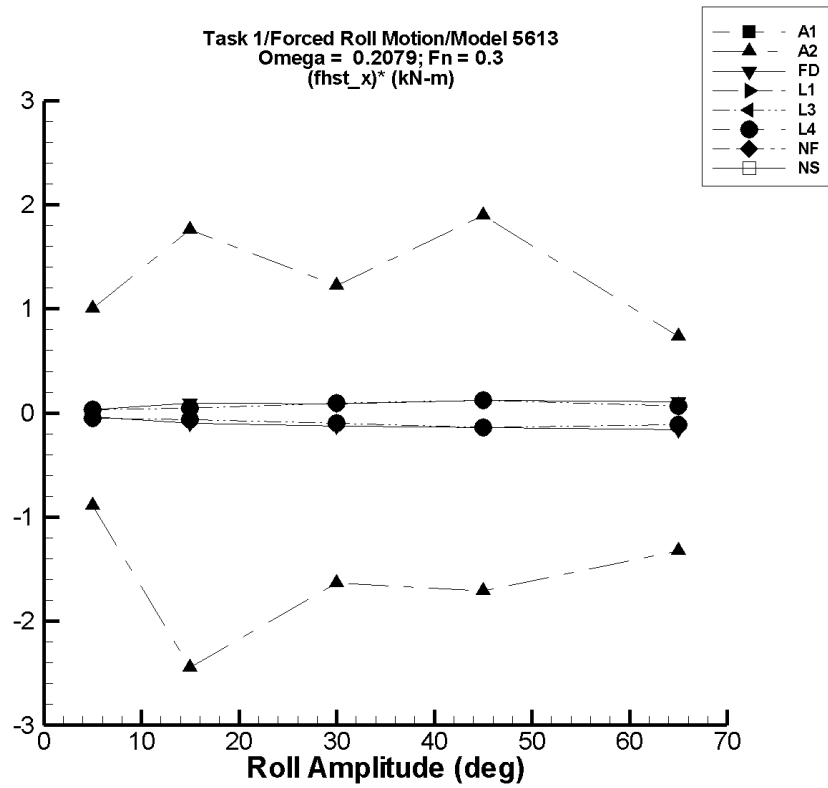


Figure M-46. Minimum and Maximum of  $(F_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-361. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_x^{\text{hst}}</math></b>		<b>Filtered <math>F_x^{\text{hst}}</math></b>		<b>Filtered <math>(F_x^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-362. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_x^{\text{hst}}</math></b>		<b>Filtered <math>F_x^{\text{hst}}</math></b>		<b>Filtered <math>(F_x^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	4.57	-5.28E-02	9.66	0.127	9.58	-0.888	1.00
15.	39.4	-4.04E-02	67.0	2.72	65.8	-2.45	1.76
30.	52.1	-5.33E-02	101.	3.14	88.9	-1.63	1.23
45.	79.5	-4.16E-02	177.	2.71	165.	-1.71	1.90
65.	88.7	-317.	177.	2.64	136.	-1.32	0.735



Table M-363. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.84	-8.50	-3.67E-02	3.08E-02
15.	-7.39	-8.84	-5.98	-8.82	-5.98	-9.54E-02	9.35E-02
30.	-5.10	-8.84	-2.55	-8.80	-2.56	-0.123	8.46E-02
45.	-2.40	-8.84	3.06	-8.80	3.02	-0.142	0.120
65.	1.74	-8.84	8.60	-8.82	8.56	-0.162	0.105

Table M-364. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-365. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.06E-02	3.00E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.56E-02	4.72E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.33E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.124
65.	-31.7	-39.2	-27.3	-39.1	-27.4	-0.114	6.59E-02

Table M-366. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.06E-02	3.00E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.56E-02	4.72E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.33E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.124
65.	-31.7	-39.2	-27.3	-39.1	-27.4	-0.114	6.59E-02

# TASK 1/ROLL MOTION/MODEL 5613

Table M-367. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-368. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

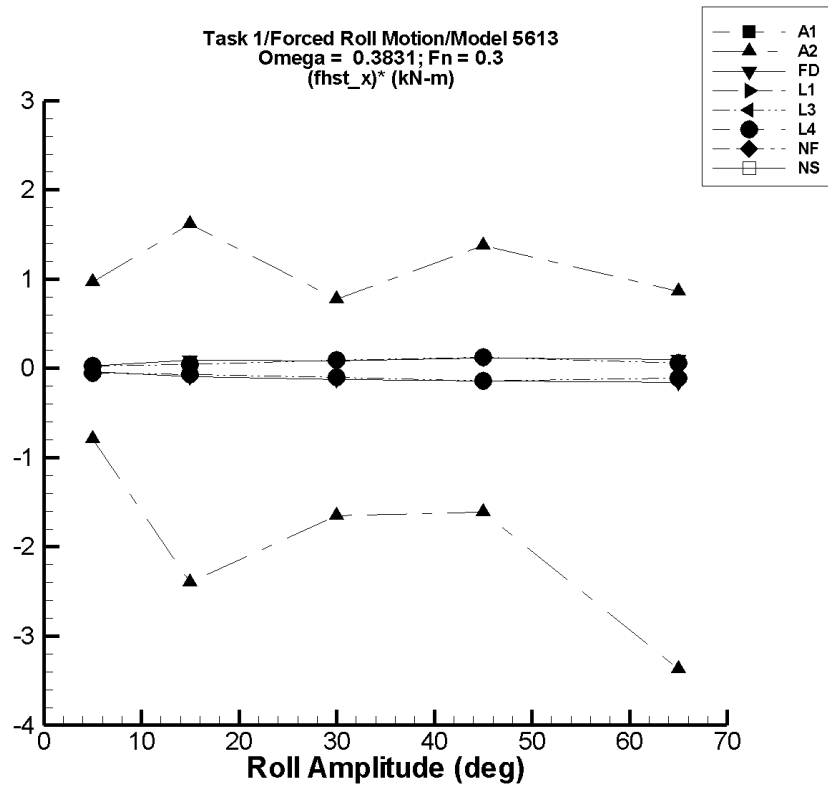


Figure M-47. Minimum and Maximum of  $(F_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-369. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-370. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.32E-02	9.66	0.611	9.43	-0.794	0.969
15.	39.4	-5.34E-02	67.0	3.38	63.6	-2.40	1.62
30.	52.1	-1.21E-02	101.	2.62	75.4	-1.65	0.777
45.	79.5	6.19E-02	177.	6.86	142.	-1.61	1.38
65.	80.3	-1.26E+03	177.	-139.	136.	-3.37	0.862

TASK 1/ROLL MOTION/MODEL 5613

Table M-371. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.83	-8.50	-3.41E-02	3.07E-02
15.	-7.38	-8.84	-5.98	-8.81	-6.00	-9.55E-02	9.24E-02
30.	-5.09	-8.84	-2.55	-8.80	-2.58	-0.123	8.38E-02
45.	-2.39	-8.83	3.05	-8.72	2.91	-0.141	0.118
65.	1.77	-8.82	8.60	-8.50	8.50	-0.158	0.104

Table M-372. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-373. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-4.97E-02	3.05E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.51E-02	4.71E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.36E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.123
65.	-31.8	-39.2	-27.3	-39.1	-27.9	-0.111	6.14E-02

Table M-374. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-4.97E-02	3.05E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.51E-02	4.71E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.36E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.123
65.	-31.8	-39.2	-27.3	-39.1	-27.9	-0.111	6.14E-02

# TASK 1/ROLL MOTION/MODEL 5613

Table M–375. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–376. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—



# TASK 1/ROLL MOTION/MODEL 5613

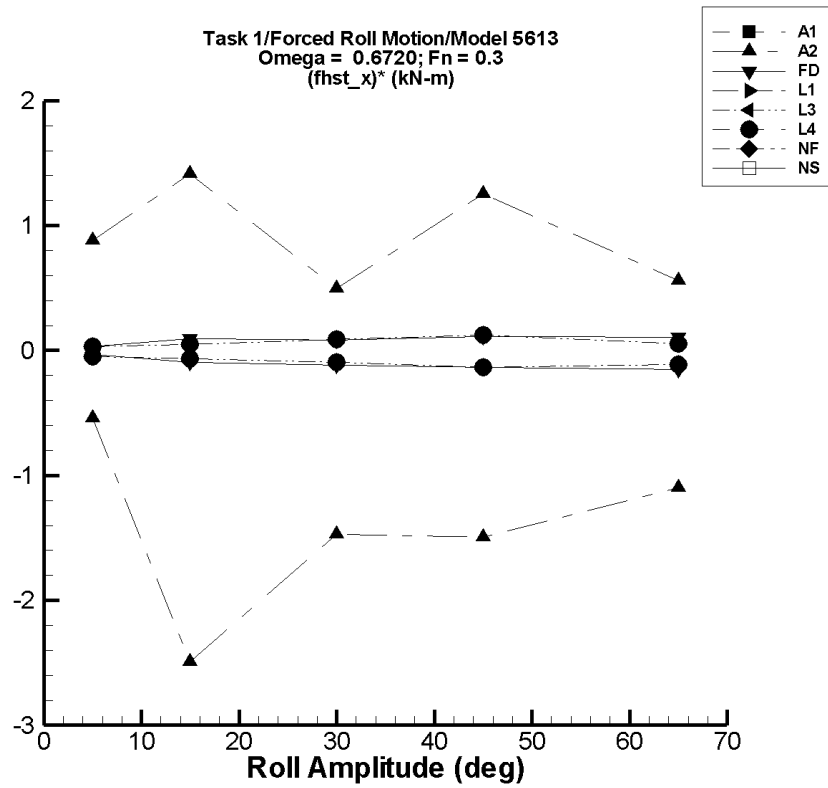


Figure M-48. Minimum and Maximum of  $(F_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–377. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–378. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.48	-5.34E-02	9.65	1.77	8.87	-0.542	0.879
15.	39.9	1.45E-02	67.0	2.54	61.1	-2.49	1.41
30.	52.5	0.249	101.	8.35	67.4	-1.47	0.497
45.	80.1	-1.93E-02	177.	12.7	136.	-1.50	1.25
65.	87.4	-152.	177.	15.8	124.	-1.10	0.559

Table M-379. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.66	-8.84	-8.50	-8.82	-8.50	-3.23E-02	3.07E-02
15.	-7.39	-8.84	-5.98	-8.79	-6.00	-9.32E-02	9.24E-02
30.	-5.11	-8.84	-2.55	-8.71	-2.58	-0.120	8.44E-02
45.	-2.39	-8.83	3.05	-8.45	2.72	-0.135	0.114
65.	1.70	-8.85	8.60	-8.04	8.51	-0.150	0.105

Table M-380. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–381. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.1	-38.8	-4.89E-02	3.04E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.36E-02	4.63E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.74E-02	9.15E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.137	0.124
65.	-31.8	-39.2	-27.3	-39.0	-28.3	-0.110	5.50E-02

Table M–382. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.9	-39.2	-38.8	-39.1	-38.8	-4.89E-02	3.04E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.36E-02	4.63E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.74E-02	9.15E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.137	0.124
65.	-31.8	-39.2	-27.3	-39.0	-28.3	-0.110	5.50E-02

# TASK 1/ROLL MOTION/MODEL 5613

Table M–383. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–384. Minimum and Maximum of  $F_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{hst}}$		Filtered $F_x^{\text{hst}}$		Filtered $(F_x^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

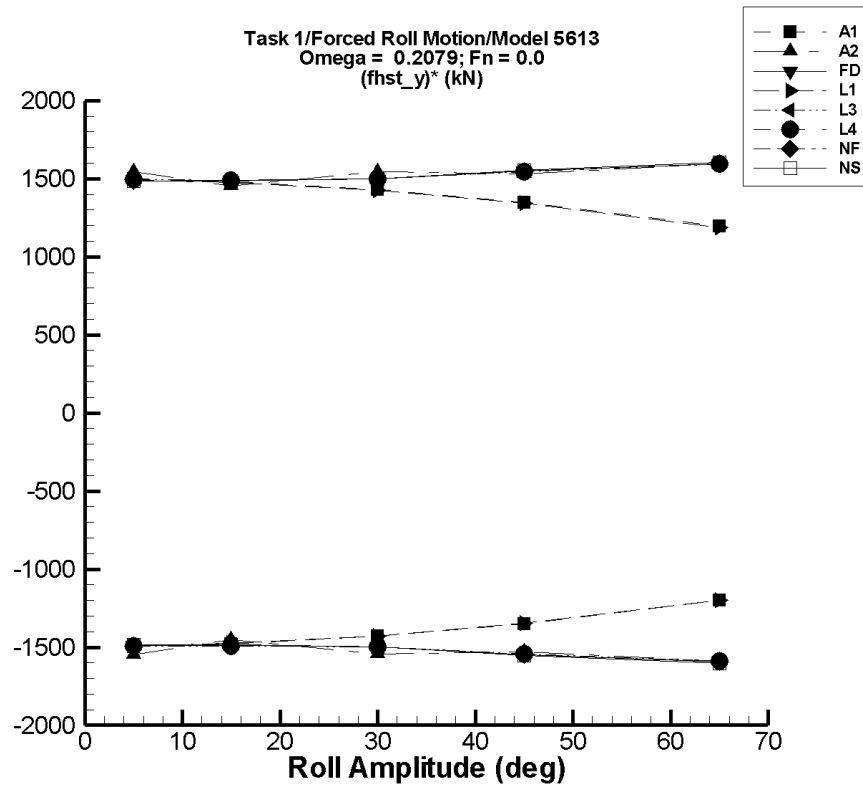


Figure M-49. Minimum and Maximum of  $(F_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M-385. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.49E-02	-7.49E+03	7.49E+03	-7.48E+03	7.49E+03	-1.50E+03	1.50E+03
15.	1.61	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	12.8	-4.30E+04	4.30E+04	-4.29E+04	4.30E+04	-1.43E+03	1.43E+03
45.	42.6	-6.07E+04	6.07E+04	-6.07E+04	6.08E+04	-1.35E+03	1.35E+03
65.	124.	-7.79E+04	7.79E+04	-7.78E+04	7.80E+04	-1.20E+03	1.20E+03

Table M-386. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.59	-7.74E+03	7.74E+03	-7.73E+03	7.74E+03	-1.55E+03	1.55E+03
15.	12.4	-2.18E+04	2.18E+04	-2.18E+04	2.18E+04	-1.45E+03	1.45E+03
30.	-17.5	-4.63E+04	4.63E+04	-4.63E+04	4.63E+04	-1.54E+03	1.54E+03
45.	-18.3	-6.89E+04	6.89E+04	-6.89E+04	6.89E+04	-1.53E+03	1.53E+03
65.	-54.6	-1.04E+05	1.04E+05	-1.03E+05	1.04E+05	-1.59E+03	1.59E+03

Table M-387. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.244	-7.45E+03	7.45E+03	-7.44E+03	7.44E+03	-1.49E+03	1.49E+03
15.	-0.183	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	-2.76	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-22.7	-6.97E+04	6.97E+04	-6.96E+04	6.96E+04	-1.55E+03	1.55E+03
65.	-59.5	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

Table M-388. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.147	-7.46E+03	7.46E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	3.91	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.48E+03	1.48E+03
30.	30.6	-4.28E+04	4.28E+04	-4.28E+04	4.28E+04	-1.43E+03	1.42E+03
45.	101.	-6.05E+04	6.05E+04	-6.05E+04	6.05E+04	-1.35E+03	1.34E+03
65.	293.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-1.20E+03	1.19E+03



Table M-389. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.75E-02	-7.46E+03	7.47E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	0.199	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-3.55	-4.50E+04	4.50E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-43.0	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-390. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.75E-02	-7.46E+03	7.47E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	0.199	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-3.55	-4.50E+04	4.50E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-43.0	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-391. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-392. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.19E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	3.39E-04	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	2.26E-03	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.276	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	45.3	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

# TASK 1/ROLL MOTION/MODEL 5613

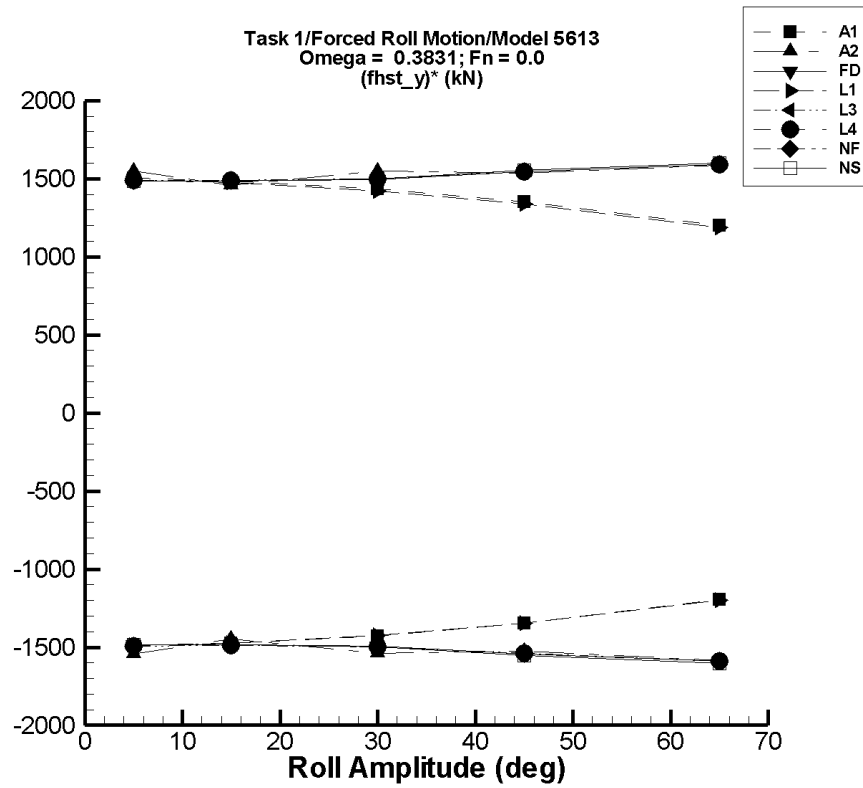


Figure M-50. Minimum and Maximum of  $(F_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M-393. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.93E-02	-7.49E+03	7.49E+03	-7.46E+03	7.51E+03	-1.49E+03	1.50E+03
15.	1.34	-2.22E+04	2.22E+04	-2.22E+04	2.23E+04	-1.48E+03	1.49E+03
30.	10.6	-4.30E+04	4.30E+04	-4.28E+04	4.31E+04	-1.43E+03	1.44E+03
45.	35.2	-6.07E+04	6.07E+04	-6.06E+04	6.09E+04	-1.35E+03	1.35E+03
65.	103.	-7.79E+04	7.79E+04	-7.77E+04	7.81E+04	-1.20E+03	1.20E+03

Table M-394. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.95	-7.74E+03	7.74E+03	-7.72E+03	7.77E+03	-1.55E+03	1.55E+03
15.	13.1	-2.18E+04	2.18E+04	-2.17E+04	2.19E+04	-1.45E+03	1.46E+03
30.	-14.9	-4.63E+04	4.63E+04	-4.61E+04	4.64E+04	-1.54E+03	1.55E+03
45.	-17.0	-6.89E+04	6.89E+04	-6.86E+04	6.90E+04	-1.52E+03	1.53E+03
65.	-80.2	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-395. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.216	-7.45E+03	7.45E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-0.198	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-3.22	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	-25.8	-6.97E+04	6.97E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-51.0	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-396. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.227	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	5.38	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	42.1	-4.28E+04	4.28E+04	-4.27E+04	4.27E+04	-1.43E+03	1.42E+03
45.	139.	-6.05E+04	6.05E+04	-6.04E+04	6.04E+04	-1.35E+03	1.34E+03
65.	401.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-1.20E+03	1.19E+03

Table M-397. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.20E-02	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	0.280	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-5.46	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-62.6	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-147.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-398. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.20E-02	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	0.280	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-5.46	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-62.6	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-147.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-399. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-400. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.55E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-6.79E-04	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	8.82E-04	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.272	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.9	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

# TASK 1/ROLL MOTION/MODEL 5613

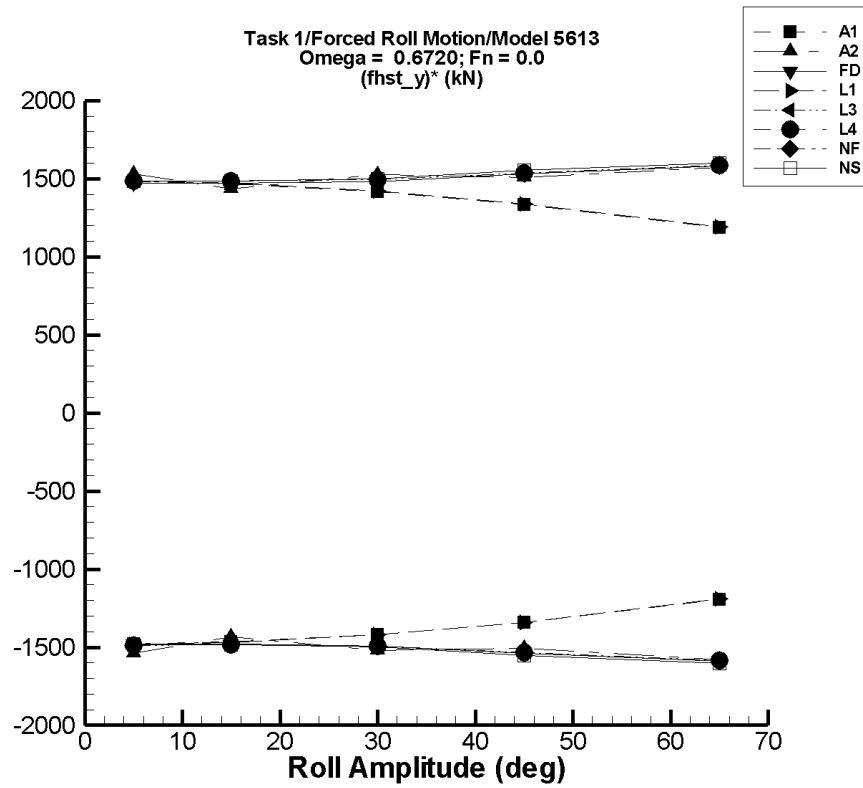


Figure M-51. Minimum and Maximum of  $(F_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.



Table M-401. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.112	-7.49E+03	7.49E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	3.19	-2.22E+04	2.22E+04	-2.20E+04	2.20E+04	-1.47E+03	1.46E+03
30.	25.3	-4.29E+04	4.29E+04	-4.25E+04	4.25E+04	-1.42E+03	1.42E+03
45.	83.8	-6.07E+04	6.07E+04	-6.02E+04	6.02E+04	-1.34E+03	1.34E+03
65.	242.	-7.78E+04	7.78E+04	-7.74E+04	7.74E+04	-1.19E+03	1.19E+03

Table M-402. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	18.0	-7.74E+03	7.74E+03	-7.68E+03	7.68E+03	-1.54E+03	1.53E+03
15.	6.11	-2.18E+04	2.18E+04	-2.15E+04	2.15E+04	-1.43E+03	1.43E+03
30.	-43.8	-4.63E+04	4.63E+04	-4.57E+04	4.57E+04	-1.52E+03	1.53E+03
45.	-39.1	-6.89E+04	6.89E+04	-6.79E+04	6.79E+04	-1.51E+03	1.51E+03
65.	70.8	-1.04E+05	1.04E+05	-1.02E+05	1.02E+05	-1.58E+03	1.57E+03

Table M-403. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.538	-7.45E+03	7.45E+03	-7.41E+03	7.36E+03	-1.48E+03	1.47E+03
15.	-0.299	-2.23E+04	2.23E+04	-2.22E+04	2.21E+04	-1.48E+03	1.47E+03
30.	-8.15	-4.50E+04	4.50E+04	-4.47E+04	4.45E+04	-1.49E+03	1.48E+03
45.	-65.6	-6.97E+04	6.97E+04	-6.92E+04	6.88E+04	-1.54E+03	1.53E+03
65.	-137.	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.58E+03

Table M-404. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.106	-7.46E+03	7.46E+03	-7.43E+03	7.43E+03	-1.49E+03	1.49E+03
15.	0.255	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	3.54E-02	-4.28E+04	4.28E+04	-4.26E+04	4.26E+04	-1.42E+03	1.42E+03
45.	-0.904	-6.05E+04	6.05E+04	-6.03E+04	6.03E+04	-1.34E+03	1.34E+03
65.	-2.65	-7.75E+04	7.75E+04	-7.74E+04	7.74E+04	-1.19E+03	1.19E+03

Table M-405. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.108	-7.46E+03	7.46E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	0.360	-2.24E+04	2.24E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	1.65	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	8.53	-6.95E+04	6.95E+04	-6.91E+04	6.92E+04	-1.54E+03	1.54E+03
65.	-5.35	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-406. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.108	-7.46E+03	7.46E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	0.360	-2.24E+04	2.24E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	1.65	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	8.53	-6.95E+04	6.95E+04	-6.91E+04	6.92E+04	-1.54E+03	1.54E+03
65.	-5.35	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

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Table M-407. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-408. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.01E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-2.84E-03	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-3.62E-04	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.264	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.7	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

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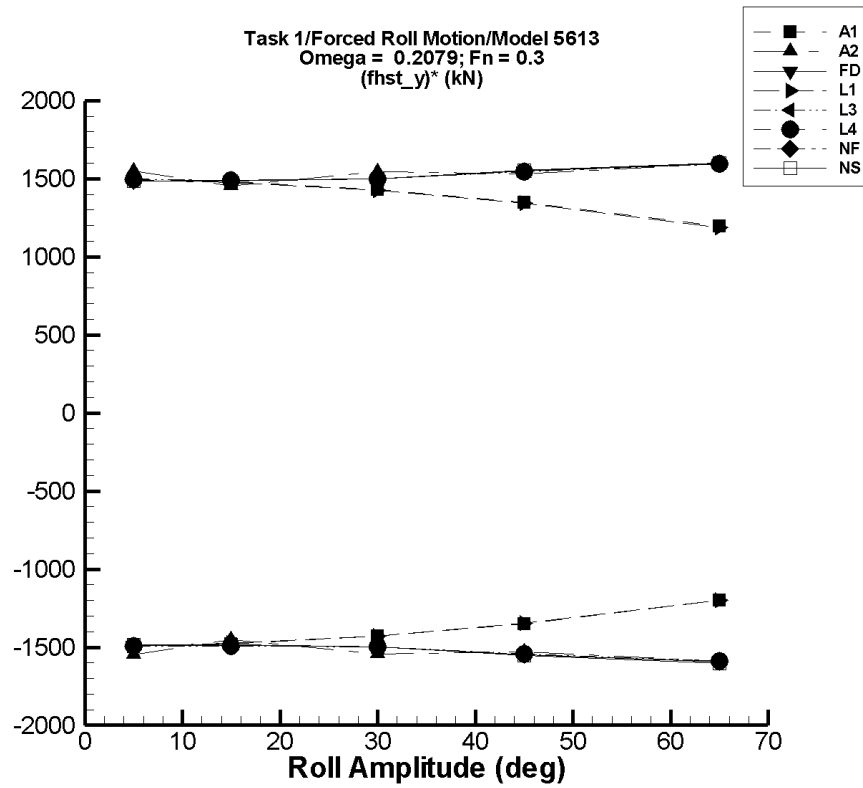


Figure M-52. Minimum and Maximum of  $(F_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-409. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.49E-02	-7.49E+03	7.49E+03	-7.48E+03	7.49E+03	-1.50E+03	1.50E+03
15.	1.61	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	12.8	-4.30E+04	4.30E+04	-4.29E+04	4.30E+04	-1.43E+03	1.43E+03
45.	42.6	-6.07E+04	6.07E+04	-6.07E+04	6.08E+04	-1.35E+03	1.35E+03
65.	124.	-7.79E+04	7.79E+04	-7.78E+04	7.80E+04	-1.20E+03	1.20E+03

Table M-410. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.95	-7.74E+03	7.74E+03	-7.73E+03	7.75E+03	-1.55E+03	1.55E+03
15.	12.4	-2.18E+04	2.18E+04	-2.18E+04	2.18E+04	-1.45E+03	1.45E+03
30.	-17.5	-4.63E+04	4.63E+04	-4.63E+04	4.63E+04	-1.54E+03	1.54E+03
45.	-18.3	-6.89E+04	6.89E+04	-6.89E+04	6.89E+04	-1.53E+03	1.53E+03
65.	-54.6	-1.04E+05	1.04E+05	-1.03E+05	1.04E+05	-1.59E+03	1.59E+03

Table M-411. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.245	-7.45E+03	7.45E+03	-7.44E+03	7.44E+03	-1.49E+03	1.49E+03
15.	-0.183	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	-2.76	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-22.7	-6.97E+04	6.97E+04	-6.96E+04	6.96E+04	-1.55E+03	1.55E+03
65.	-59.5	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

Table M-412. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.147	-7.46E+03	7.46E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	3.91	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.48E+03	1.48E+03
30.	30.6	-4.28E+04	4.28E+04	-4.28E+04	4.28E+04	-1.43E+03	1.42E+03
45.	101.	-6.05E+04	6.05E+04	-6.05E+04	6.05E+04	-1.35E+03	1.34E+03
65.	293.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-1.20E+03	1.19E+03

Table M-413. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.93E-02	-7.46E+03	7.46E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	0.203	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-3.54	-4.50E+04	4.50E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-43.0	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-414. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.93E-02	-7.46E+03	7.46E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	0.203	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-3.54	-4.50E+04	4.50E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-43.0	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03



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Table M-415. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-416. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.19E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	3.39E-04	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	2.26E-03	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.276	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.9	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

# TASK 1/ROLL MOTION/MODEL 5613

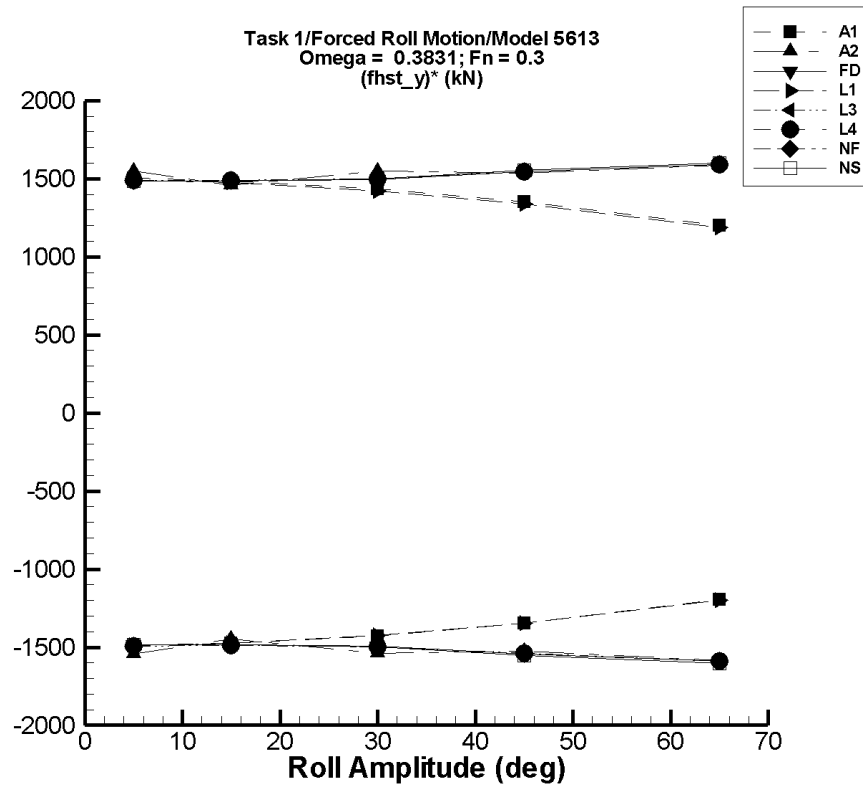


Figure M-53. Minimum and Maximum of  $(F_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M-417. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.93E-02	-7.49E+03	7.49E+03	-7.46E+03	7.51E+03	-1.49E+03	1.50E+03
15.	1.34	-2.22E+04	2.22E+04	-2.22E+04	2.23E+04	-1.48E+03	1.49E+03
30.	10.6	-4.30E+04	4.30E+04	-4.28E+04	4.31E+04	-1.43E+03	1.44E+03
45.	35.2	-6.07E+04	6.07E+04	-6.06E+04	6.09E+04	-1.35E+03	1.35E+03
65.	103.	-7.79E+04	7.79E+04	-7.77E+04	7.81E+04	-1.20E+03	1.20E+03

Table M-418. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.95	-7.74E+03	7.74E+03	-7.72E+03	7.77E+03	-1.55E+03	1.55E+03
15.	13.1	-2.18E+04	2.18E+04	-2.17E+04	2.19E+04	-1.45E+03	1.46E+03
30.	-14.9	-4.63E+04	4.63E+04	-4.61E+04	4.64E+04	-1.54E+03	1.55E+03
45.	-17.0	-6.89E+04	6.89E+04	-6.86E+04	6.90E+04	-1.52E+03	1.53E+03
65.	-80.2	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-419. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.216	-7.45E+03	7.45E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-0.198	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-3.22	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	-25.8	-6.97E+04	6.97E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-51.0	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-420. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.227	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	5.38	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	42.1	-4.28E+04	4.28E+04	-4.27E+04	4.27E+04	-1.43E+03	1.42E+03
45.	139.	-6.05E+04	6.05E+04	-6.04E+04	6.04E+04	-1.35E+03	1.34E+03
65.	401.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-1.20E+03	1.19E+03

Table M-421. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.19E-02	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	0.279	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-5.46	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-62.6	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-147.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-422. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.19E-02	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	0.279	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-5.46	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-62.6	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-147.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-423. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-424. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.55E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-6.79E-04	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	8.82E-04	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.272	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.9	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

# TASK 1/ROLL MOTION/MODEL 5613

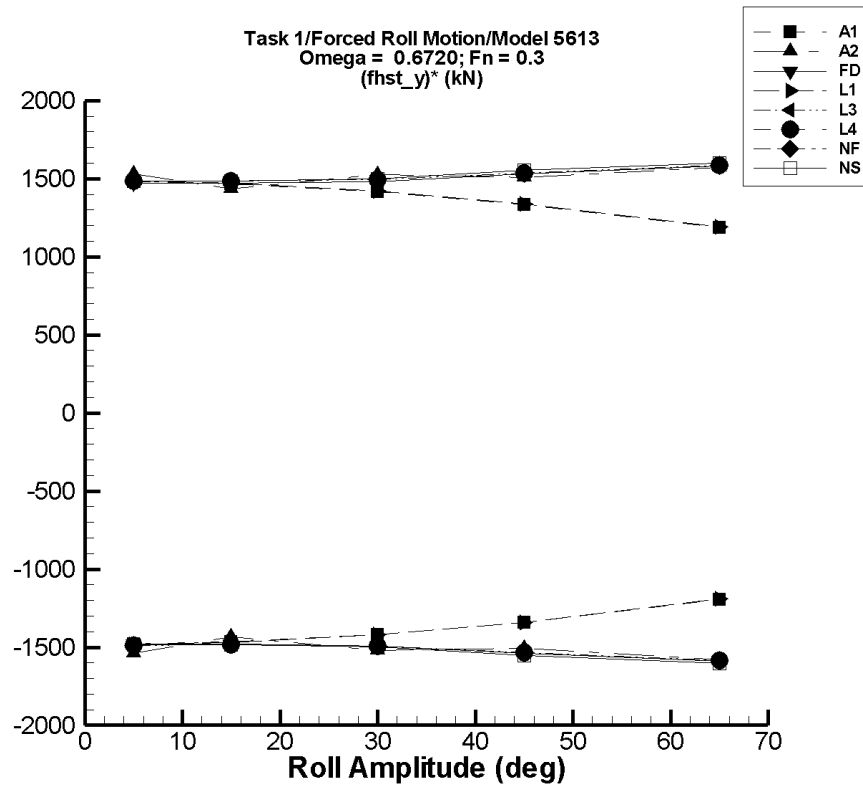


Figure M-54. Minimum and Maximum of  $(F_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M-425. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.112	-7.49E+03	7.49E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	3.19	-2.22E+04	2.22E+04	-2.20E+04	2.20E+04	-1.47E+03	1.46E+03
30.	25.3	-4.29E+04	4.29E+04	-4.25E+04	4.25E+04	-1.42E+03	1.42E+03
45.	83.8	-6.07E+04	6.07E+04	-6.02E+04	6.02E+04	-1.34E+03	1.34E+03
65.	242.	-7.78E+04	7.78E+04	-7.74E+04	7.74E+04	-1.19E+03	1.19E+03

Table M-426. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	18.0	-7.74E+03	7.74E+03	-7.68E+03	7.68E+03	-1.54E+03	1.53E+03
15.	6.11	-2.18E+04	2.18E+04	-2.15E+04	2.15E+04	-1.43E+03	1.43E+03
30.	-43.8	-4.63E+04	4.63E+04	-4.57E+04	4.57E+04	-1.52E+03	1.53E+03
45.	-39.1	-6.89E+04	6.89E+04	-6.79E+04	6.79E+04	-1.51E+03	1.51E+03
65.	70.8	-1.04E+05	1.04E+05	-1.02E+05	1.02E+05	-1.58E+03	1.57E+03



Table M-427. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.538	-7.45E+03	7.45E+03	-7.41E+03	7.36E+03	-1.48E+03	1.47E+03
15.	-0.299	-2.23E+04	2.23E+04	-2.22E+04	2.21E+04	-1.48E+03	1.47E+03
30.	-8.14	-4.50E+04	4.50E+04	-4.47E+04	4.45E+04	-1.49E+03	1.48E+03
45.	-65.6	-6.97E+04	6.97E+04	-6.92E+04	6.88E+04	-1.54E+03	1.53E+03
65.	-137.	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.58E+03

Table M-428. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.106	-7.46E+03	7.46E+03	-7.43E+03	7.43E+03	-1.49E+03	1.49E+03
15.	0.255	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	3.54E-02	-4.28E+04	4.28E+04	-4.26E+04	4.26E+04	-1.42E+03	1.42E+03
45.	-0.904	-6.05E+04	6.05E+04	-6.03E+04	6.03E+04	-1.34E+03	1.34E+03
65.	-2.65	-7.75E+04	7.75E+04	-7.74E+04	7.74E+04	-1.19E+03	1.19E+03

Table M-429. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.110	-7.46E+03	7.46E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	0.356	-2.24E+04	2.24E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	1.65	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	8.54	-6.95E+04	6.95E+04	-6.91E+04	6.92E+04	-1.54E+03	1.54E+03
65.	-5.36	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M-430. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.110	-7.46E+03	7.46E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	0.356	-2.24E+04	2.24E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	1.65	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	8.54	-6.95E+04	6.95E+04	-6.91E+04	6.92E+04	-1.54E+03	1.54E+03
65.	-5.36	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-431. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-432. Minimum and Maximum of  $F_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{hst}}$		Filtered $F_y^{\text{hst}}$		Filtered $(F_y^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.01E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-2.84E-03	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-3.62E-04	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.264	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.7	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

# TASK 1/ROLL MOTION/MODEL 5613

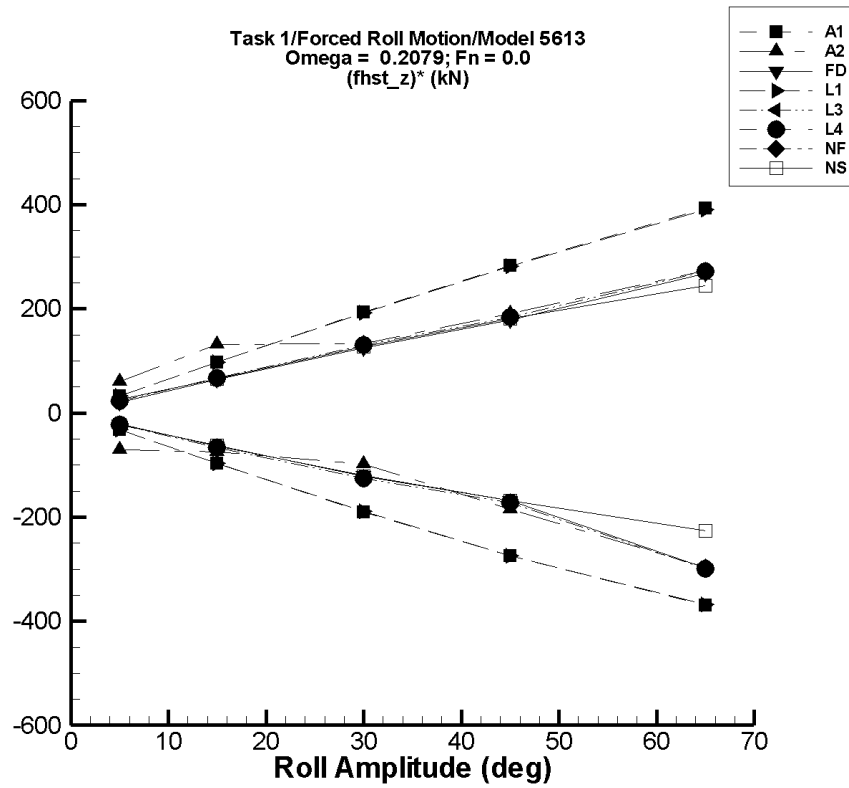


Figure M-55. Minimum and Maximum of  $(F_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

TASK 1/ROLL MOTION/MODEL 5613

Table M-433. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.6	32.8
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-97.0	97.9
30.	8.01E+04	7.44E+04	8.59E+04	7.44E+04	8.59E+04	-190.	193.
45.	7.32E+04	6.07E+04	8.59E+04	6.08E+04	8.59E+04	-275.	284.
65.	6.04E+04	3.63E+04	8.59E+04	3.64E+04	8.59E+04	-369.	393.

Table M-434. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.52E+04	8.59E+04	-70.2	60.5
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-75.1	132.
30.	8.19E+04	7.90E+04	8.59E+04	7.90E+04	8.59E+04	-98.8	133.
45.	7.73E+04	6.91E+04	8.59E+04	6.90E+04	8.59E+04	-184.	191.
65.	6.81E+04	4.88E+04	8.59E+04	4.89E+04	8.59E+04	-296.	273.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-435. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-21.2	20.6
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.53E+04	-63.6	64.0
30.	8.15E+04	7.79E+04	8.53E+04	7.79E+04	8.53E+04	-120.	125.
45.	7.73E+04	6.97E+04	8.53E+04	6.97E+04	8.53E+04	-168.	178.
65.	6.79E+04	4.84E+04	8.53E+04	4.85E+04	8.53E+04	-297.	269.

Table M-436. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.5	32.5
15.	8.41E+04	8.26E+04	8.56E+04	8.26E+04	8.56E+04	-96.9	97.2
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-190.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.05E+04	8.55E+04	-274.	282.
65.	6.01E+04	3.61E+04	8.56E+04	3.62E+04	8.55E+04	-369.	391.

TASK 1/ROLL MOTION/MODEL 5613

Table M-437. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.8	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.94E+04	8.55E+04	-173.	184.
65.	6.78E+04	4.83E+04	8.55E+04	4.83E+04	8.55E+04	-300.	272.

Table M-438. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.8	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.94E+04	8.55E+04	-173.	184.
65.	6.78E+04	4.83E+04	8.55E+04	4.83E+04	8.55E+04	-300.	272.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-439. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-440. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.



# TASK 1/ROLL MOTION/MODEL 5613

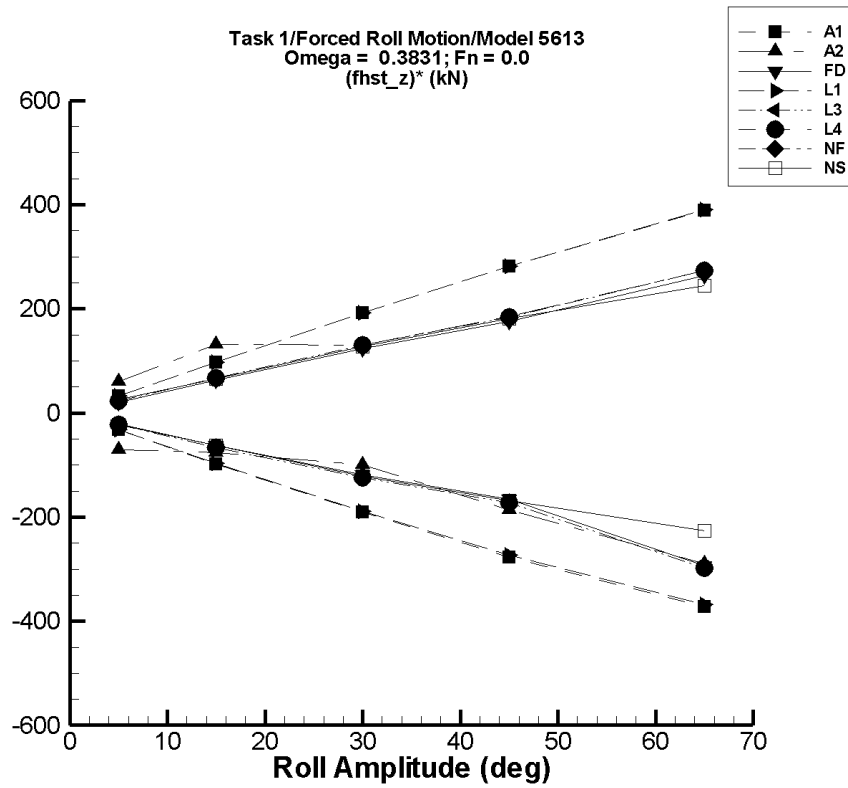


Figure M-56. Minimum and Maximum of  $(F_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

TASK 1/ROLL MOTION/MODEL 5613

Table M-441. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.8	32.5
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-97.6	97.2
30.	8.01E+04	7.44E+04	8.59E+04	7.44E+04	8.59E+04	-191.	192.
45.	7.32E+04	6.07E+04	8.59E+04	6.07E+04	8.58E+04	-277.	281.
65.	6.04E+04	3.63E+04	8.59E+04	3.62E+04	8.57E+04	-372.	389.

Table M-442. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.52E+04	8.59E+04	-70.5	60.0
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-75.7	132.
30.	8.19E+04	7.89E+04	8.59E+04	7.89E+04	8.58E+04	-99.6	130.
45.	7.73E+04	6.90E+04	8.59E+04	6.89E+04	8.57E+04	-187.	185.
65.	6.79E+04	4.19E+04	8.59E+04	4.91E+04	8.56E+04	-289.	273.

TASK 1/ROLL MOTION/MODEL 5613

Table M-443. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-21.0	20.5
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.53E+04	-62.9	63.3
30.	8.15E+04	7.79E+04	8.53E+04	7.80E+04	8.52E+04	-119.	123.
45.	7.73E+04	6.97E+04	8.53E+04	6.98E+04	8.52E+04	-166.	176.
65.	6.79E+04	4.84E+04	8.53E+04	4.88E+04	8.51E+04	-294.	264.

Table M-444. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.4	32.6
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-96.6	97.5
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-189.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.06E+04	8.56E+04	-274.	282.
65.	6.02E+04	3.61E+04	8.56E+04	3.63E+04	8.56E+04	-368.	391.

TASK 1/ROLL MOTION/MODEL 5613

Table M-445. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.7	23.0
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.3	67.3
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.95E+04	8.55E+04	-173.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.84E+04	8.55E+04	-297.	274.

Table M-446. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.7	23.0
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.3	67.3
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.95E+04	8.55E+04	-173.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.84E+04	8.55E+04	-297.	274.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-447. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-448. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

# TASK 1/ROLL MOTION/MODEL 5613

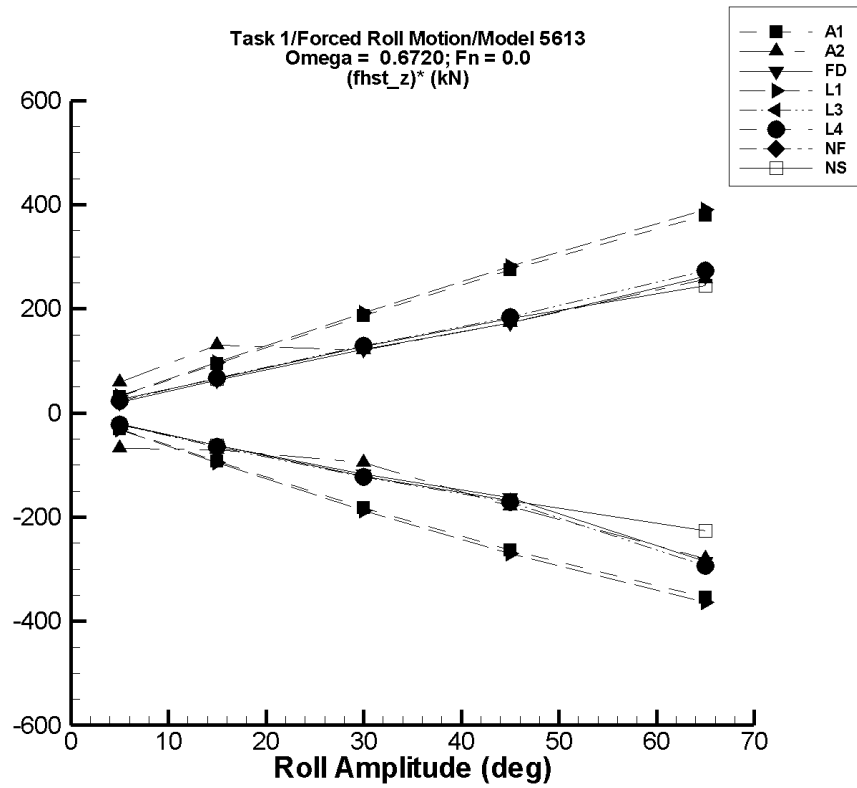


Figure M-57. Minimum and Maximum of  $(F_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

TASK 1/ROLL MOTION/MODEL 5613

Table M-449. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-31.2	31.8
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-92.9	94.8
30.	8.01E+04	7.44E+04	8.59E+04	7.47E+04	8.57E+04	-182.	187.
45.	7.32E+04	6.07E+04	8.59E+04	6.13E+04	8.55E+04	-264.	275.
65.	6.04E+04	3.63E+04	8.59E+04	3.73E+04	8.51E+04	-355.	379.

Table M-450. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.53E+04	8.59E+04	-68.0	59.4
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-71.3	130.
30.	8.19E+04	7.89E+04	8.59E+04	7.91E+04	8.55E+04	-95.2	120.
45.	7.74E+04	6.88E+04	8.59E+04	6.93E+04	8.52E+04	-180.	173.
65.	6.80E+04	4.87E+04	8.59E+04	4.98E+04	8.48E+04	-280.	258.

TASK 1/ROLL MOTION/MODEL 5613

Table M-451. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-20.6	20.3
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.52E+04	-61.8	62.5
30.	8.15E+04	7.79E+04	8.53E+04	7.80E+04	8.52E+04	-117.	122.
45.	7.73E+04	6.97E+04	8.53E+04	6.99E+04	8.51E+04	-163.	173.
65.	6.78E+04	4.84E+04	8.53E+04	4.93E+04	8.48E+04	-286.	262.

Table M-452. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.0	32.6
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-95.5	97.3
30.	7.98E+04	7.41E+04	8.56E+04	7.42E+04	8.56E+04	-187.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.07E+04	8.56E+04	-271.	282.
65.	6.02E+04	3.62E+04	8.56E+04	3.65E+04	8.55E+04	-364.	390.



TASK 1/ROLL MOTION/MODEL 5613

Table M-453. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.5	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-65.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-124.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.96E+04	8.55E+04	-171.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.87E+04	8.55E+04	-293.	273.

Table M-454. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.5	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-65.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-124.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.96E+04	8.55E+04	-171.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.87E+04	8.55E+04	-293.	273.

TASK 1/ROLL MOTION/MODEL 5613

Table M-455. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-456. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

# TASK 1/ROLL MOTION/MODEL 5613

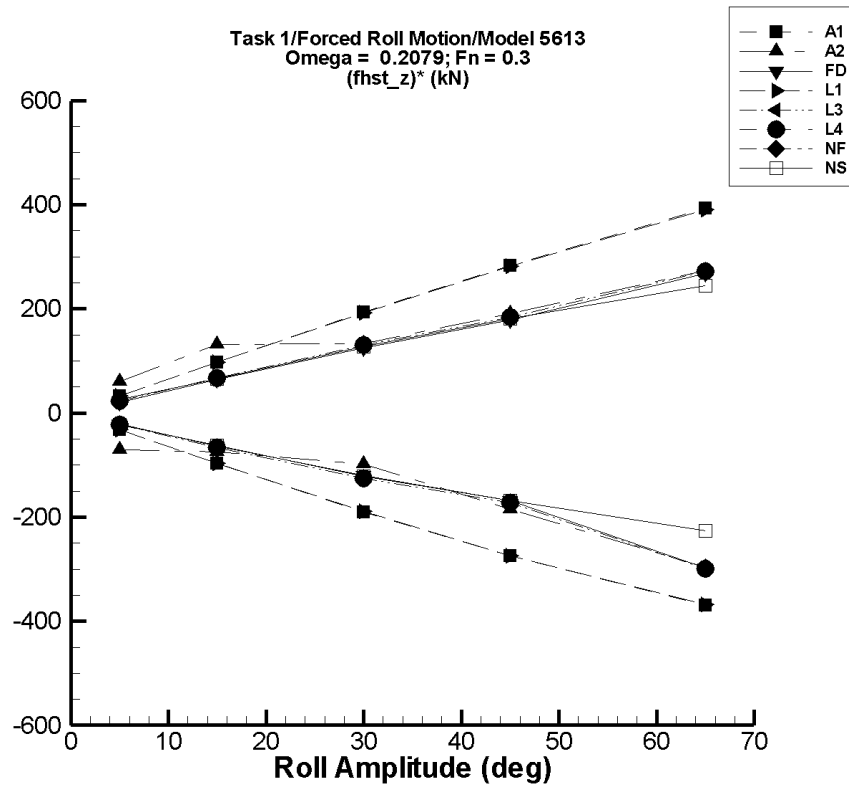


Figure M-58. Minimum and Maximum of  $(F_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-457. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.6	32.8
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-97.0	97.9
30.	8.01E+04	7.44E+04	8.59E+04	7.44E+04	8.59E+04	-190.	193.
45.	7.32E+04	6.07E+04	8.59E+04	6.08E+04	8.59E+04	-275.	284.
65.	6.04E+04	3.63E+04	8.59E+04	3.64E+04	8.59E+04	-369.	393.

Table M-458. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.52E+04	8.59E+04	-70.1	60.7
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-75.1	132.
30.	8.19E+04	7.90E+04	8.59E+04	7.90E+04	8.59E+04	-98.8	133.
45.	7.73E+04	6.91E+04	8.59E+04	6.90E+04	8.59E+04	-184.	191.
65.	6.81E+04	4.88E+04	8.59E+04	4.89E+04	8.59E+04	-296.	273.

TASK 1/ROLL MOTION/MODEL 5613

Table M-459. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-21.2	20.6
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.53E+04	-63.6	64.0
30.	8.15E+04	7.79E+04	8.53E+04	7.79E+04	8.53E+04	-120.	125.
45.	7.73E+04	6.97E+04	8.53E+04	6.97E+04	8.53E+04	-168.	178.
65.	6.79E+04	4.84E+04	8.53E+04	4.85E+04	8.53E+04	-297.	269.

Table M-460. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.5	32.5
15.	8.41E+04	8.26E+04	8.56E+04	8.26E+04	8.56E+04	-96.9	97.2
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-190.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.05E+04	8.55E+04	-274.	282.
65.	6.01E+04	3.61E+04	8.56E+04	3.62E+04	8.55E+04	-369.	391.

TASK 1/ROLL MOTION/MODEL 5613

Table M-461. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.8	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.94E+04	8.55E+04	-173.	184.
65.	6.78E+04	4.83E+04	8.55E+04	4.83E+04	8.55E+04	-300.	272.

Table M-462. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.8	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.94E+04	8.55E+04	-173.	184.
65.	6.78E+04	4.83E+04	8.55E+04	4.83E+04	8.55E+04	-300.	272.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-463. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-464. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

# TASK 1/ROLL MOTION/MODEL 5613

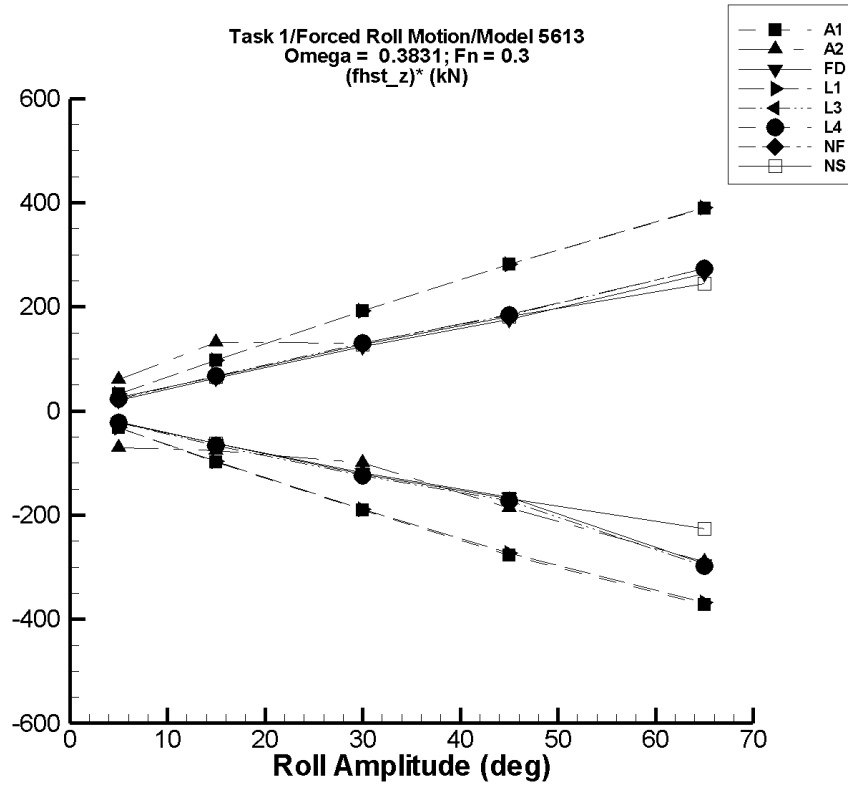


Figure M-59. Minimum and Maximum of  $(F_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.



TASK 1/ROLL MOTION/MODEL 5613

Table M-465. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.8	32.5
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-97.6	97.2
30.	8.01E+04	7.44E+04	8.59E+04	7.44E+04	8.59E+04	-191.	192.
45.	7.32E+04	6.07E+04	8.59E+04	6.07E+04	8.58E+04	-277.	281.
65.	6.04E+04	3.63E+04	8.59E+04	3.62E+04	8.57E+04	-372.	389.

Table M-466. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.52E+04	8.59E+04	-70.5	60.0
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-75.7	132.
30.	8.19E+04	7.89E+04	8.59E+04	7.89E+04	8.58E+04	-99.6	130.
45.	7.73E+04	6.90E+04	8.59E+04	6.89E+04	8.57E+04	-187.	185.
65.	6.79E+04	4.19E+04	8.59E+04	4.91E+04	8.56E+04	-289.	273.

TASK 1/ROLL MOTION/MODEL 5613

Table M-467. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-21.0	20.5
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.53E+04	-62.9	63.3
30.	8.15E+04	7.79E+04	8.53E+04	7.80E+04	8.52E+04	-119.	123.
45.	7.73E+04	6.97E+04	8.53E+04	6.98E+04	8.52E+04	-166.	176.
65.	6.79E+04	4.84E+04	8.53E+04	4.88E+04	8.51E+04	-294.	264.

Table M-468. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.4	32.6
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-96.6	97.5
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-189.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.06E+04	8.56E+04	-274.	282.
65.	6.02E+04	3.61E+04	8.56E+04	3.63E+04	8.56E+04	-368.	391.

TASK 1/ROLL MOTION/MODEL 5613

Table M-469. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.7	23.0
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.3	67.3
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.95E+04	8.55E+04	-173.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.84E+04	8.55E+04	-297.	274.

Table M-470. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.7	23.0
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.3	67.3
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.95E+04	8.55E+04	-173.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.84E+04	8.55E+04	-297.	274.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-471. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-472. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

# TASK 1/ROLL MOTION/MODEL 5613

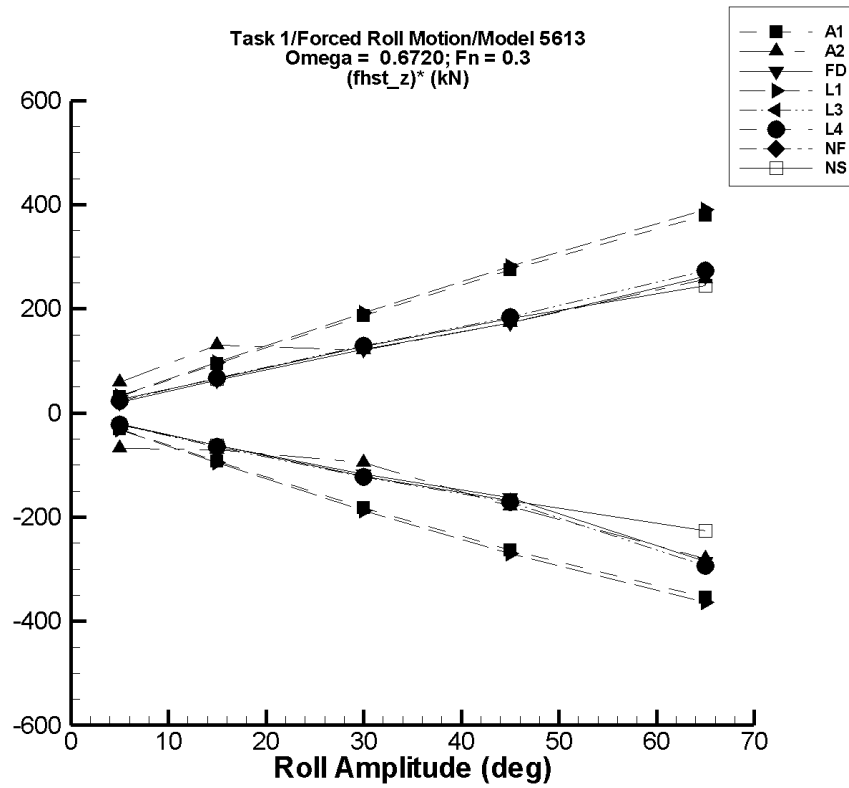


Figure M-60. Minimum and Maximum of  $(F_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-473. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-31.2	31.8
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-92.9	94.8
30.	8.01E+04	7.44E+04	8.59E+04	7.47E+04	8.57E+04	-182.	187.
45.	7.32E+04	6.07E+04	8.59E+04	6.13E+04	8.55E+04	-264.	275.
65.	6.04E+04	3.63E+04	8.59E+04	3.73E+04	8.51E+04	-355.	379.

Table M-474. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.53E+04	8.59E+04	-68.0	59.4
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-71.3	130.
30.	8.19E+04	7.89E+04	8.59E+04	7.91E+04	8.55E+04	-95.2	120.
45.	7.74E+04	6.88E+04	8.59E+04	6.93E+04	8.52E+04	-180.	173.
65.	6.80E+04	4.87E+04	8.59E+04	4.98E+04	8.48E+04	-280.	258.

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Table M-475. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-20.6	20.3
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.52E+04	-61.8	62.5
30.	8.15E+04	7.79E+04	8.53E+04	7.80E+04	8.52E+04	-117.	122.
45.	7.73E+04	6.97E+04	8.53E+04	6.99E+04	8.51E+04	-163.	173.
65.	6.78E+04	4.84E+04	8.53E+04	4.93E+04	8.48E+04	-286.	262.

Table M-476. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.0	32.6
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-95.5	97.3
30.	7.98E+04	7.41E+04	8.56E+04	7.42E+04	8.56E+04	-187.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.07E+04	8.56E+04	-271.	282.
65.	6.02E+04	3.62E+04	8.56E+04	3.65E+04	8.55E+04	-364.	390.

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Table M-477. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.5	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-65.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-124.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.96E+04	8.55E+04	-171.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.87E+04	8.55E+04	-293.	273.

Table M-478. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.5	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-65.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-124.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.96E+04	8.55E+04	-171.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.87E+04	8.55E+04	-293.	273.



# TASK 1/ROLL MOTION/MODEL 5613

Table M-479. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-480. Minimum and Maximum of  $F_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{hst}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{hst}}$		Filtered $F_z^{\text{hst}}$		Filtered $(F_z^{\text{hst}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

# TASK 1/ROLL MOTION/MODEL 5613

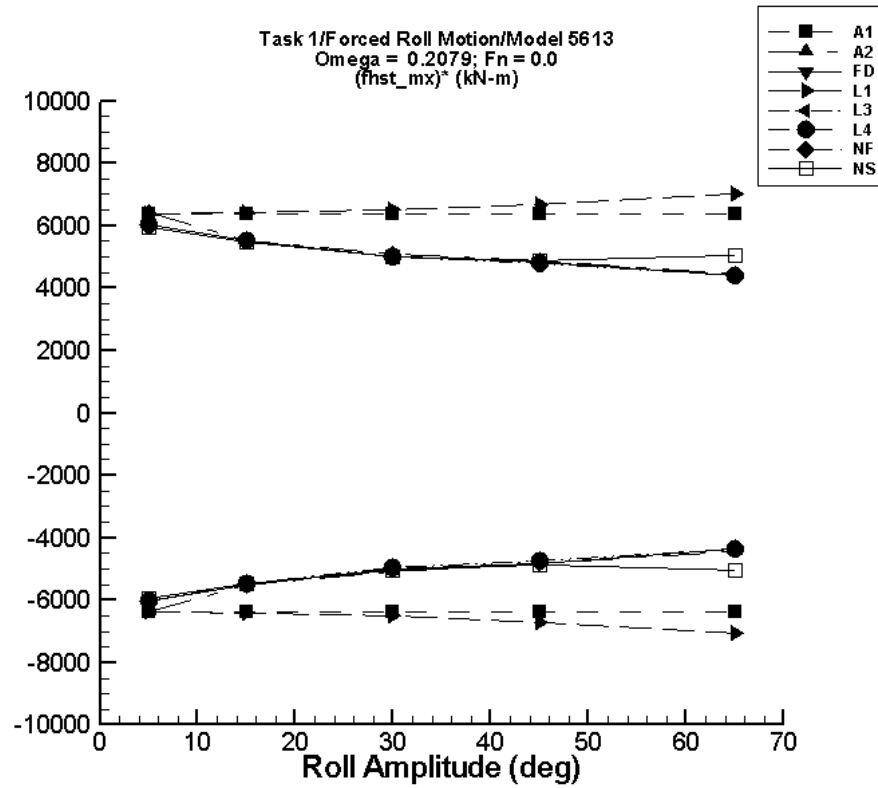


Figure M-61. Minimum and Maximum of  $(M_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M-481. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	2.05E-02	-3.19E+04	3.19E+04	-3.19E+04	3.19E+04	-6.38E+03	6.38E+03
15.	6.81E-02	-9.57E+04	9.57E+04	-9.57E+04	9.56E+04	-6.38E+03	6.37E+03
30.	0.125	-1.91E+05	1.91E+05	-1.91E+05	1.91E+05	-6.38E+03	6.37E+03
45.	0.216	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-6.38E+03	6.37E+03
65.	0.325	-4.15E+05	4.15E+05	-4.15E+05	4.14E+05	-6.38E+03	6.37E+03

Table M-482. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-58.3	-3.20E+04	3.20E+04	-3.20E+04	3.20E+04	-6.39E+03	6.41E+03
15.	-118.	-8.27E+04	8.27E+04	-8.27E+04	8.26E+04	-5.51E+03	5.52E+03
30.	-177.	-1.53E+05	1.53E+05	-1.53E+05	1.53E+05	-5.10E+03	5.11E+03
45.	-278.	-2.18E+05	2.18E+05	-2.18E+05	2.18E+05	-4.84E+03	4.85E+03
65.	-576.	-2.87E+05	2.87E+05	-2.88E+05	2.87E+05	-4.42E+03	4.43E+03

Table M-483. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-7.78	-3.02E+04	3.02E+04	-3.01E+04	3.01E+04	-6.02E+03	6.03E+03
15.	-65.6	-8.27E+04	8.27E+04	-8.27E+04	8.27E+04	-5.51E+03	5.52E+03
30.	-194.	-1.50E+05	1.50E+05	-1.50E+05	1.50E+05	-5.00E+03	5.01E+03
45.	-277.	-2.17E+05	2.17E+05	-2.17E+05	2.17E+05	-4.81E+03	4.83E+03
65.	-498.	-2.84E+05	2.84E+05	-2.85E+05	2.84E+05	-4.37E+03	4.38E+03

Table M-484. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	0.315	-3.18E+04	3.18E+04	-3.18E+04	3.18E+04	-6.37E+03	6.37E+03
15.	8.48	-9.60E+04	9.60E+04	-9.60E+04	9.60E+04	-6.40E+03	6.40E+03
30.	68.1	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.51E+03	6.51E+03
45.	226.	-3.01E+05	3.01E+05	-3.01E+05	3.01E+05	-6.70E+03	6.69E+03
65.	655.	-4.57E+05	4.57E+05	-4.57E+05	4.57E+05	-7.04E+03	7.02E+03

Table M-485. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-18.4	-3.01E+04	3.01E+04	-3.01E+04	3.01E+04	-6.01E+03	6.02E+03
15.	-125.	-8.24E+04	8.24E+04	-8.24E+04	8.24E+04	-5.48E+03	5.50E+03
30.	-358.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.98E+03
45.	-501.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-774.	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.37E+03	4.39E+03

Table M-486. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-18.4	-3.01E+04	3.01E+04	-3.01E+04	3.01E+04	-6.01E+03	6.02E+03
15.	-125.	-8.24E+04	8.24E+04	-8.24E+04	8.24E+04	-5.48E+03	5.50E+03
30.	-358.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.98E+03
45.	-501.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-774.	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.37E+03	4.39E+03

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Table M-487. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-488. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.94E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	-4.71E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	-5.91E-03	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.42	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	-326.	-3.29E+05	3.27E+05	-3.28E+05	3.26E+05	-5.05E+03	5.03E+03

Task 1/ROLL MOTION/MODEL 5613

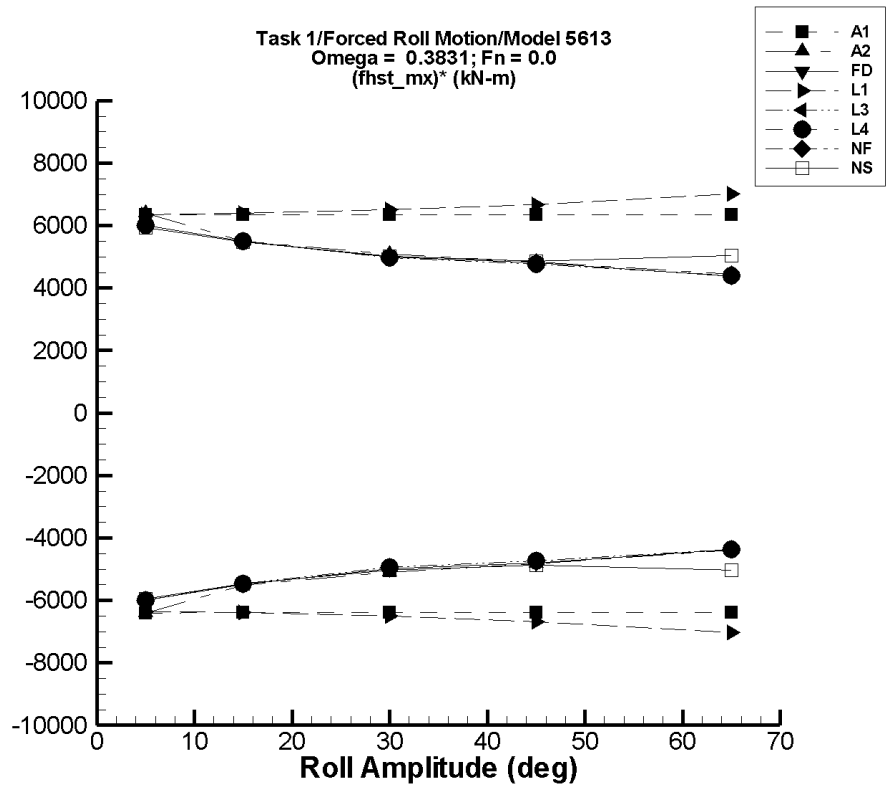


Figure M-62. Minimum and Maximum of  $(M_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M-489. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.92E-03	-3.19E+04	3.19E+04	-3.20E+04	3.18E+04	-6.40E+03	6.36E+03
15.	-1.96E-04	-9.57E+04	9.57E+04	-9.60E+04	9.53E+04	-6.40E+03	6.36E+03
30.	-1.06E-03	-1.91E+05	1.91E+05	-1.92E+05	1.91E+05	-6.40E+03	6.36E+03
45.	-2.55E-02	-2.87E+05	2.87E+05	-2.88E+05	2.86E+05	-6.40E+03	6.36E+03
65.	-8.65E-03	-4.15E+05	4.15E+05	-4.16E+05	4.13E+05	-6.40E+03	6.36E+03

Table M-490. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-54.6	-3.20E+04	3.20E+04	-3.21E+04	3.19E+04	-6.40E+03	6.39E+03
15.	-112.	-8.27E+04	8.27E+04	-8.29E+04	8.25E+04	-5.52E+03	5.51E+03
30.	-158.	-1.53E+05	1.53E+05	-1.53E+05	1.53E+05	-5.11E+03	5.09E+03
45.	-249.	-2.18E+05	2.18E+05	-2.18E+05	2.17E+05	-4.83E+03	4.82E+03
65.	-1.42E+03	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-4.40E+03	4.44E+03



Table M-491. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-7.40	-3.02E+04	3.02E+04	-3.00E+04	3.00E+04	-6.01E+03	6.01E+03
15.	-60.4	-8.27E+04	8.27E+04	-8.25E+04	8.25E+04	-5.49E+03	5.50E+03
30.	-176.	-1.50E+05	1.50E+05	-1.50E+05	1.50E+05	-4.99E+03	5.00E+03
45.	-227.	-2.17E+05	2.17E+05	-2.16E+05	2.16E+05	-4.80E+03	4.81E+03
65.	-536.	-2.84E+05	2.84E+05	-2.84E+05	2.84E+05	-4.37E+03	4.38E+03

Table M-492. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	0.317	-3.18E+04	3.18E+04	-3.18E+04	3.18E+04	-6.36E+03	6.36E+03
15.	11.6	-9.60E+04	9.60E+04	-9.59E+04	9.59E+04	-6.39E+03	6.39E+03
30.	93.4	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.51E+03	6.50E+03
45.	309.	-3.01E+05	3.01E+05	-3.01E+05	3.01E+05	-6.69E+03	6.68E+03
65.	896.	-4.57E+05	4.57E+05	-4.57E+05	4.57E+05	-7.04E+03	7.01E+03

Table M-493. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-24.7	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-6.00E+03	6.01E+03
15.	-166.	-8.24E+04	8.24E+04	-8.23E+04	8.23E+04	-5.48E+03	5.50E+03
30.	-475.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.98E+03
45.	-633.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-1.19E+03	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.36E+03	4.40E+03

Table M-494. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-24.7	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-6.00E+03	6.01E+03
15.	-166.	-8.24E+04	8.24E+04	-8.23E+04	8.23E+04	-5.48E+03	5.50E+03
30.	-475.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.98E+03
45.	-633.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-1.19E+03	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.36E+03	4.40E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-495. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-496. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.43E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	-2.51E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	6.98E-04	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.39	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	216.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03

# TASK 1/ROLL MOTION/MODEL 5613

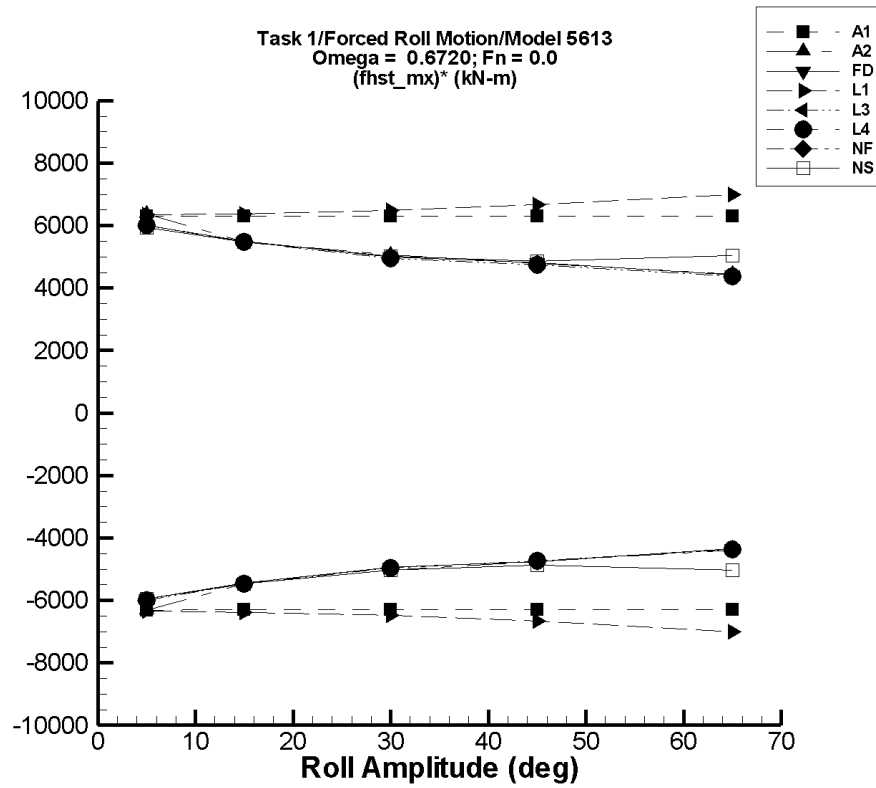


Figure M-63. Minimum and Maximum of  $(M_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M-497. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	2.88E-02	-3.19E+04	3.19E+04	-3.15E+04	3.15E+04	-6.31E+03	6.31E+03
15.	9.24E-02	-9.56E+04	9.57E+04	-9.46E+04	9.46E+04	-6.30E+03	6.31E+03
30.	0.194	-1.91E+05	1.91E+05	-1.89E+05	1.89E+05	-6.30E+03	6.31E+03
45.	0.299	-2.87E+05	2.87E+05	-2.84E+05	2.84E+05	-6.30E+03	6.31E+03
65.	0.420	-4.14E+05	4.15E+05	-4.10E+05	4.10E+05	-6.30E+03	6.31E+03

Table M-498. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-110.	-3.20E+04	3.20E+04	-3.17E+04	3.17E+04	-6.32E+03	6.37E+03
15.	-153.	-8.26E+04	8.27E+04	-8.21E+04	8.21E+04	-5.46E+03	5.48E+03
30.	-321.	-1.53E+05	1.53E+05	-1.52E+05	1.52E+05	-5.04E+03	5.06E+03
45.	-545.	-2.18E+05	2.18E+05	-2.15E+05	2.15E+05	-4.77E+03	4.79E+03
65.	-1.77E+03	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-4.38E+03	4.45E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-499. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-18.4	-3.02E+04	3.02E+04	-2.98E+04	3.00E+04	-5.96E+03	6.01E+03
15.	-150.	-8.27E+04	8.27E+04	-8.19E+04	8.24E+04	-5.45E+03	5.50E+03
30.	-426.	-1.50E+05	1.50E+05	-1.49E+05	1.50E+05	-4.94E+03	5.01E+03
45.	-537.	-2.17E+05	2.17E+05	-2.15E+05	2.16E+05	-4.76E+03	4.81E+03
65.	-1.22E+03	-2.84E+05	2.84E+05	-2.84E+05	2.85E+05	-4.35E+03	4.41E+03

Table M-500. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-0.471	-3.18E+04	3.18E+04	-3.17E+04	3.17E+04	-6.34E+03	6.34E+03
15.	-1.67	-9.60E+04	9.60E+04	-9.56E+04	9.56E+04	-6.38E+03	6.37E+03
30.	-4.43	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.49E+03	6.49E+03
45.	-8.80	-3.01E+05	3.01E+05	-3.00E+05	3.00E+05	-6.67E+03	6.67E+03
65.	-16.0	-4.57E+05	4.57E+05	-4.55E+05	4.55E+05	-7.00E+03	7.00E+03

Table M-501. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-2.28	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-5.99E+03	5.99E+03
15.	-16.7	-8.24E+04	8.24E+04	-8.21E+04	8.21E+04	-5.47E+03	5.48E+03
30.	-56.6	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.96E+03
45.	-140.	-2.14E+05	2.14E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	-76.4	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.38E+03	4.38E+03

Table M-502. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-2.28	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-5.99E+03	5.99E+03
15.	-16.7	-8.24E+04	8.24E+04	-8.21E+04	8.21E+04	-5.47E+03	5.48E+03
30.	-56.6	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.96E+03
45.	-140.	-2.14E+05	2.14E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	-76.4	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.38E+03	4.38E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-503. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-504. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.82E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	6.76E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	8.06E-04	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.39	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	218.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03



# TASK 1/ROLL MOTION/MODEL 5613

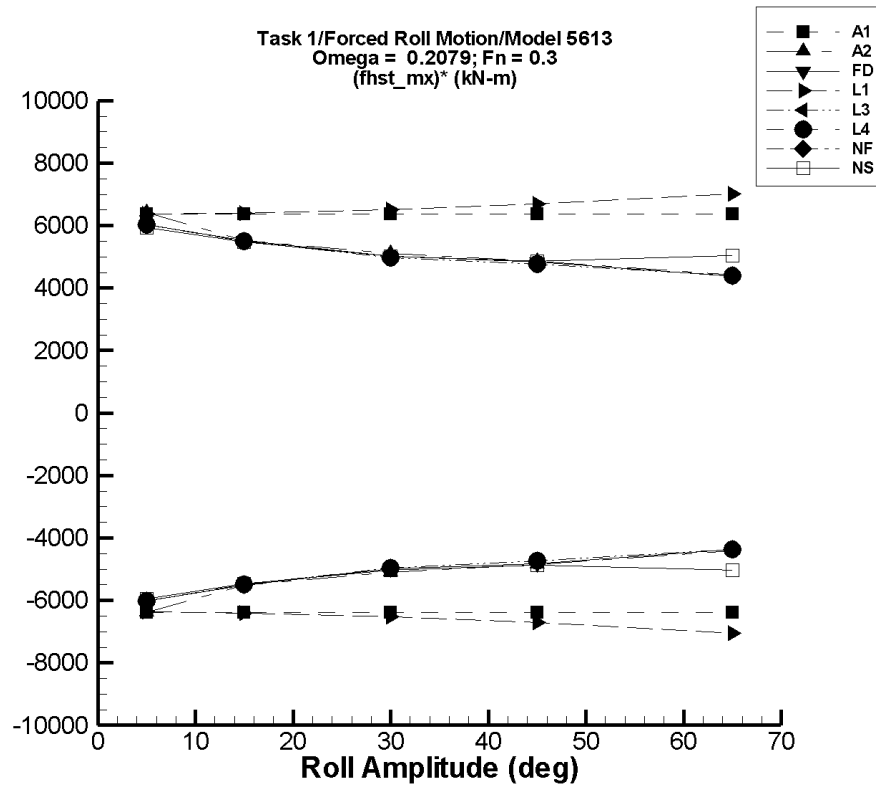


Figure M-64. Minimum and Maximum of  $(M_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-505. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	2.05E-02	-3.19E+04	3.19E+04	-3.19E+04	3.19E+04	-6.38E+03	6.38E+03
15.	6.81E-02	-9.57E+04	9.57E+04	-9.57E+04	9.56E+04	-6.38E+03	6.37E+03
30.	0.125	-1.91E+05	1.91E+05	-1.91E+05	1.91E+05	-6.38E+03	6.37E+03
45.	0.216	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-6.38E+03	6.37E+03
65.	0.325	-4.15E+05	4.15E+05	-4.15E+05	4.14E+05	-6.38E+03	6.37E+03

Table M-506. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-60.4	-3.20E+04	3.20E+04	-3.20E+04	3.20E+04	-6.39E+03	6.41E+03
15.	-118.	-8.27E+04	8.27E+04	-8.27E+04	8.26E+04	-5.51E+03	5.52E+03
30.	-177.	-1.53E+05	1.53E+05	-1.53E+05	1.53E+05	-5.10E+03	5.11E+03
45.	-278.	-2.18E+05	2.18E+05	-2.18E+05	2.18E+05	-4.84E+03	4.85E+03
65.	-576.	-2.87E+05	2.87E+05	-2.88E+05	2.87E+05	-4.42E+03	4.43E+03

Table M-507. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-7.78	-3.02E+04	3.02E+04	-3.01E+04	3.01E+04	-6.02E+03	6.03E+03
15.	-65.6	-8.27E+04	8.27E+04	-8.27E+04	8.27E+04	-5.51E+03	5.52E+03
30.	-194.	-1.50E+05	1.50E+05	-1.50E+05	1.50E+05	-5.00E+03	5.01E+03
45.	-277.	-2.17E+05	2.17E+05	-2.17E+05	2.17E+05	-4.81E+03	4.83E+03
65.	-498.	-2.84E+05	2.84E+05	-2.85E+05	2.84E+05	-4.37E+03	4.38E+03

Table M-508. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	0.315	-3.18E+04	3.18E+04	-3.18E+04	3.18E+04	-6.37E+03	6.37E+03
15.	8.48	-9.60E+04	9.60E+04	-9.60E+04	9.60E+04	-6.40E+03	6.40E+03
30.	68.1	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.51E+03	6.51E+03
45.	226.	-3.01E+05	3.01E+05	-3.01E+05	3.01E+05	-6.70E+03	6.69E+03
65.	655.	-4.57E+05	4.57E+05	-4.57E+05	4.57E+05	-7.04E+03	7.02E+03

Table M-509. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-18.4	-3.01E+04	3.01E+04	-3.01E+04	3.01E+04	-6.01E+03	6.02E+03
15.	-125.	-8.24E+04	8.24E+04	-8.24E+04	8.24E+04	-5.48E+03	5.50E+03
30.	-358.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.98E+03
45.	-501.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-774.	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.37E+03	4.39E+03

Table M-510. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-18.4	-3.01E+04	3.01E+04	-3.01E+04	3.01E+04	-6.01E+03	6.02E+03
15.	-125.	-8.24E+04	8.24E+04	-8.24E+04	8.24E+04	-5.48E+03	5.50E+03
30.	-358.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.98E+03
45.	-501.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-774.	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.37E+03	4.39E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-511. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-512. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.94E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	-4.71E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	-5.91E-03	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.42	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	219.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03

# TASK 1/ROLL MOTION/MODEL 5613

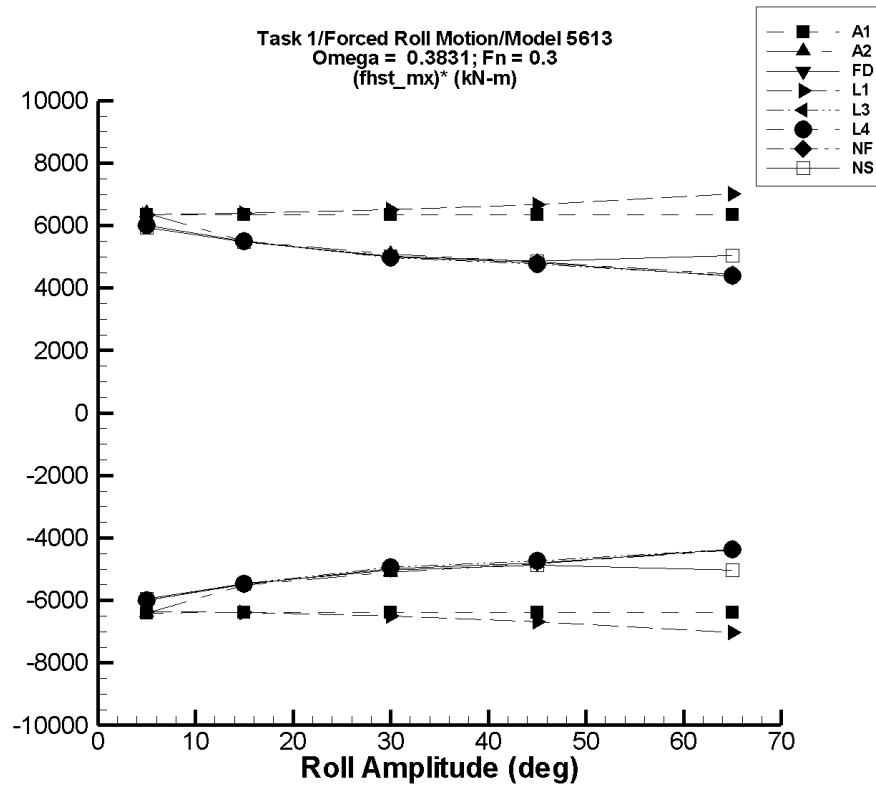


Figure M-65. Minimum and Maximum of  $(M_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M-513. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.92E-03	-3.19E+04	3.19E+04	-3.20E+04	3.18E+04	-6.40E+03	6.36E+03
15.	-1.96E-04	-9.57E+04	9.57E+04	-9.60E+04	9.53E+04	-6.40E+03	6.36E+03
30.	-1.06E-03	-1.91E+05	1.91E+05	-1.92E+05	1.91E+05	-6.40E+03	6.36E+03
45.	-2.55E-02	-2.87E+05	2.87E+05	-2.88E+05	2.86E+05	-6.40E+03	6.36E+03
65.	-8.65E-03	-4.15E+05	4.15E+05	-4.16E+05	4.13E+05	-6.40E+03	6.36E+03

Table M-514. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-54.6	-3.20E+04	3.20E+04	-3.21E+04	3.19E+04	-6.40E+03	6.39E+03
15.	-112.	-8.27E+04	8.27E+04	-8.29E+04	8.25E+04	-5.52E+03	5.51E+03
30.	-158.	-1.53E+05	1.53E+05	-1.53E+05	1.53E+05	-5.11E+03	5.09E+03
45.	-249.	-2.18E+05	2.18E+05	-2.18E+05	2.17E+05	-4.83E+03	4.82E+03
65.	-1.42E+03	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-4.40E+03	4.44E+03

Table M-515. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-7.40	-3.02E+04	3.02E+04	-3.00E+04	3.00E+04	-6.01E+03	6.01E+03
15.	-60.4	-8.27E+04	8.27E+04	-8.25E+04	8.25E+04	-5.49E+03	5.50E+03
30.	-176.	-1.50E+05	1.50E+05	-1.50E+05	1.50E+05	-4.99E+03	5.00E+03
45.	-227.	-2.17E+05	2.17E+05	-2.16E+05	2.16E+05	-4.80E+03	4.81E+03
65.	-536.	-2.84E+05	2.84E+05	-2.84E+05	2.84E+05	-4.37E+03	4.38E+03

Table M-516. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	0.317	-3.18E+04	3.18E+04	-3.18E+04	3.18E+04	-6.36E+03	6.36E+03
15.	11.6	-9.60E+04	9.60E+04	-9.59E+04	9.59E+04	-6.39E+03	6.39E+03
30.	93.4	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.51E+03	6.50E+03
45.	309.	-3.01E+05	3.01E+05	-3.01E+05	3.01E+05	-6.69E+03	6.68E+03
65.	896.	-4.57E+05	4.57E+05	-4.57E+05	4.57E+05	-7.04E+03	7.01E+03



Table M-517. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-24.7	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-6.00E+03	6.01E+03
15.	-166.	-8.24E+04	8.24E+04	-8.23E+04	8.23E+04	-5.48E+03	5.50E+03
30.	-475.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.98E+03
45.	-633.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-1.19E+03	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.36E+03	4.40E+03

Table M-518. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-24.7	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-6.00E+03	6.01E+03
15.	-166.	-8.24E+04	8.24E+04	-8.23E+04	8.23E+04	-5.48E+03	5.50E+03
30.	-475.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.98E+03
45.	-633.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-1.19E+03	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.36E+03	4.40E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-519. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-520. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.43E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	-2.51E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	6.98E-04	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.39	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	216.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03

Task 1/ROLL MOTION/MODEL 5613

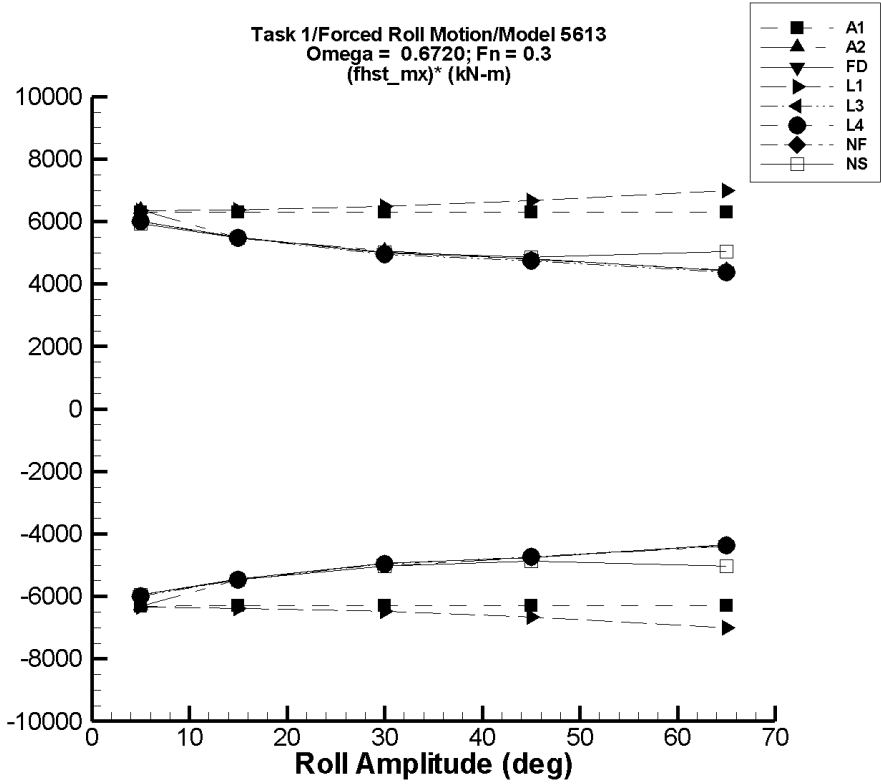


Figure M-66. Minimum and Maximum of  $(M_x^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M-521. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	2.88E-02	-3.19E+04	3.19E+04	-3.15E+04	3.15E+04	-6.31E+03	6.31E+03
15.	9.24E-02	-9.56E+04	9.57E+04	-9.46E+04	9.46E+04	-6.30E+03	6.31E+03
30.	0.194	-1.91E+05	1.91E+05	-1.89E+05	1.89E+05	-6.30E+03	6.31E+03
45.	0.299	-2.87E+05	2.87E+05	-2.84E+05	2.84E+05	-6.30E+03	6.31E+03
65.	0.420	-4.14E+05	4.15E+05	-4.10E+05	4.10E+05	-6.30E+03	6.31E+03

Table M-522. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-110.	-3.20E+04	3.20E+04	-3.17E+04	3.17E+04	-6.32E+03	6.37E+03
15.	-153.	-8.26E+04	8.27E+04	-8.21E+04	8.21E+04	-5.46E+03	5.48E+03
30.	-321.	-1.53E+05	1.53E+05	-1.52E+05	1.52E+05	-5.04E+03	5.06E+03
45.	-545.	-2.18E+05	2.18E+05	-2.15E+05	2.15E+05	-4.77E+03	4.79E+03
65.	-1.77E+03	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-4.38E+03	4.45E+03

Table M-523. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-18.4	-3.02E+04	3.02E+04	-2.98E+04	3.00E+04	-5.96E+03	6.01E+03
15.	-150.	-8.27E+04	8.27E+04	-8.19E+04	8.24E+04	-5.45E+03	5.50E+03
30.	-426.	-1.50E+05	1.50E+05	-1.49E+05	1.50E+05	-4.94E+03	5.01E+03
45.	-537.	-2.17E+05	2.17E+05	-2.15E+05	2.16E+05	-4.76E+03	4.81E+03
65.	-1.22E+03	-2.84E+05	2.84E+05	-2.84E+05	2.85E+05	-4.35E+03	4.41E+03

Table M-524. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered $(M_x^{\text{hst}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.471	-3.18E+04	3.18E+04	-3.17E+04	3.17E+04	-6.34E+03	6.34E+03
15.	-1.67	-9.60E+04	9.60E+04	-9.56E+04	9.56E+04	-6.38E+03	6.37E+03
30.	-4.43	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.49E+03	6.49E+03
45.	-8.80	-3.01E+05	3.01E+05	-3.00E+05	3.00E+05	-6.67E+03	6.67E+03
65.	-16.0	-4.57E+05	4.57E+05	-4.55E+05	4.55E+05	-7.00E+03	7.00E+03

Table M-525. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-2.28	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-5.99E+03	5.99E+03
15.	-16.7	-8.24E+04	8.24E+04	-8.21E+04	8.21E+04	-5.47E+03	5.48E+03
30.	-56.6	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.96E+03
45.	-140.	-2.14E+05	2.14E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	-76.4	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.38E+03	4.38E+03

Table M-526. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{hst}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{hst}})^*$ Max. (kN-m/°)
5.	-2.28	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-5.99E+03	5.99E+03
15.	-16.7	-8.24E+04	8.24E+04	-8.21E+04	8.21E+04	-5.47E+03	5.48E+03
30.	-56.6	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.96E+03
45.	-140.	-2.14E+05	2.14E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	-76.4	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.38E+03	4.38E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-527. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-528. Minimum and Maximum of  $M_x^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{hst}}$		Filtered $M_x^{\text{hst}}$		Filtered $(M_x^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.82E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	6.76E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	8.06E-04	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.39	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	218.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03

# TASK 1/ROLL MOTION/MODEL 5613

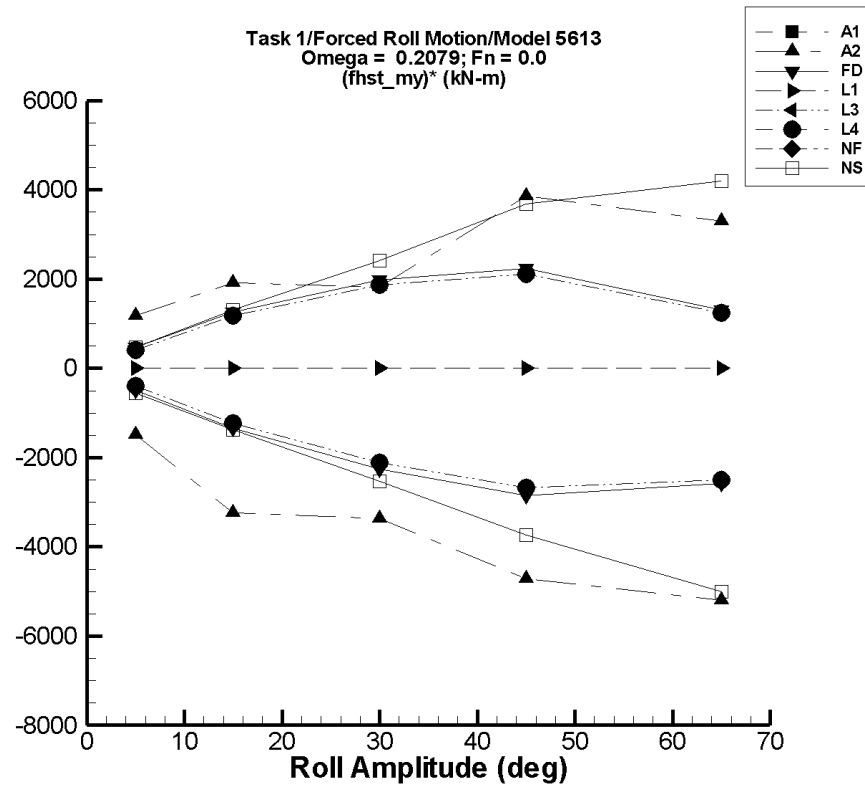


Figure M-67. Minimum and Maximum of  $(M_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.



TASK 1/ROLL MOTION/MODEL 5613

Table M-529. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-530. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.2	1.33E+04	-66.2	1.32E+04	-1.48E+03	1.18E+03
15.	4.84E+04	-38.0	7.75E+04	-133.	7.71E+04	-3.24E+03	1.91E+03
30.	1.01E+05	-38.0	1.56E+05	428.	1.56E+05	-3.36E+03	1.81E+03
45.	2.13E+05	-32.1	3.87E+05	448.	3.86E+05	-4.71E+03	3.86E+03
65.	3.39E+05	8.57	5.53E+05	340.	5.53E+05	-5.20E+03	3.30E+03

Table M-531. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.62E+03	4.16E+03	8.99E+03	4.17E+03	8.98E+03	-490.	472.
15.	2.43E+04	4.16E+03	4.32E+04	4.15E+03	4.31E+04	-1.34E+03	1.26E+03
30.	7.20E+04	4.17E+03	1.32E+05	4.12E+03	1.32E+05	-2.26E+03	1.98E+03
45.	1.32E+05	4.18E+03	2.33E+05	4.16E+03	2.33E+05	-2.85E+03	2.24E+03
65.	1.73E+05	4.18E+03	2.59E+05	4.81E+03	2.58E+05	-2.58E+03	1.31E+03

Table M-532. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.12E-07	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.85E-04	3.85E-04
15.	-3.00E-06	-5.60E-03	5.60E-03	-5.60E-03	5.60E-03	-3.73E-04	3.73E-04
30.	-2.35E-05	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.34E-04	3.35E-04
45.	-7.65E-05	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.72E-04	2.75E-04
65.	-2.16E-04	-1.24E-02	1.24E-02	-1.24E-02	1.24E-02	-1.88E-04	1.94E-04

Table M-533. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	674.	-1.34E+03	2.75E+03	-1.34E+03	2.75E+03	-402.	414.
15.	1.72E+04	-1.34E+03	3.49E+04	-1.32E+03	3.49E+04	-1.23E+03	1.18E+03
30.	6.24E+04	-1.34E+03	1.19E+05	-1.25E+03	1.19E+05	-2.12E+03	1.87E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.14E+03	2.15E+05	-2.68E+03	2.11E+03
65.	1.62E+05	-1.34E+03	2.43E+05	-912.	2.42E+05	-2.50E+03	1.24E+03

Table M-534. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	674.	-1.34E+03	2.75E+03	-1.34E+03	2.75E+03	-402.	414.
15.	1.72E+04	-1.34E+03	3.49E+04	-1.32E+03	3.49E+04	-1.23E+03	1.18E+03
30.	6.24E+04	-1.34E+03	1.19E+05	-1.25E+03	1.19E+05	-2.12E+03	1.87E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.14E+03	2.15E+05	-2.68E+03	2.11E+03
65.	1.62E+05	-1.34E+03	2.43E+05	-912.	2.42E+05	-2.50E+03	1.24E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-535. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-536. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	830.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-220.	5.99E+05	826.	5.98E+05	-5.00E+03	4.20E+03

# TASK 1/ROLL MOTION/MODEL 5613

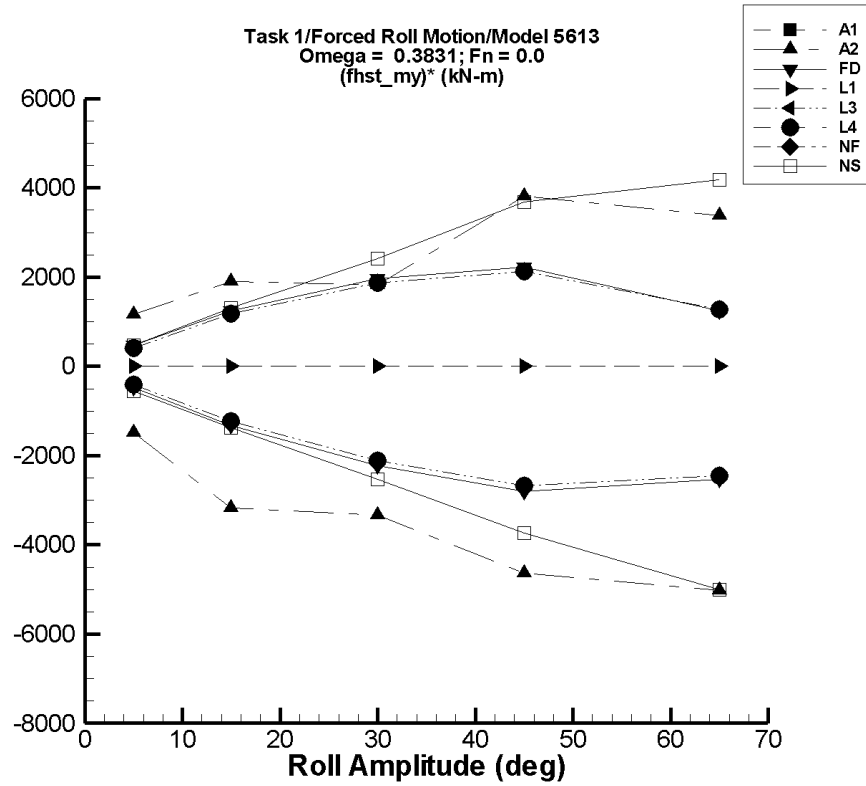


Figure M-68. Minimum and Maximum of  $(M_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-537. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-538. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.3	1.33E+04	-110.	1.32E+04	-1.49E+03	1.17E+03
15.	4.84E+04	-38.1	7.75E+04	642.	7.68E+04	-3.18E+03	1.90E+03
30.	1.01E+05	-38.0	1.56E+05	1.19E+03	1.56E+05	-3.33E+03	1.83E+03
45.	2.13E+05	-37.9	3.86E+05	4.08E+03	3.84E+05	-4.63E+03	3.81E+03
65.	3.34E+05	-2.11E+05	5.53E+05	7.83E+03	5.54E+05	-5.02E+03	3.38E+03

Table M-539. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.62E+03	4.16E+03	8.99E+03	4.22E+03	8.96E+03	-481.	467.
15.	2.43E+04	4.18E+03	4.32E+04	4.45E+03	4.29E+04	-1.32E+03	1.24E+03
30.	7.21E+04	4.20E+03	1.32E+05	5.18E+03	1.31E+05	-2.23E+03	1.96E+03
45.	1.32E+05	4.22E+03	2.33E+05	6.44E+03	2.32E+05	-2.80E+03	2.22E+03
65.	1.74E+05	4.26E+03	2.59E+05	8.90E+03	2.55E+05	-2.54E+03	1.25E+03

Table M-540. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.61E-07	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.85E-04	3.85E-04
15.	-4.13E-06	-5.60E-03	5.60E-03	-5.59E-03	5.59E-03	-3.73E-04	3.73E-04
30.	-3.22E-05	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.33E-04	3.35E-04
45.	-1.05E-04	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.71E-04	2.76E-04
65.	-2.94E-04	-1.24E-02	1.24E-02	-1.24E-02	1.24E-02	-1.86E-04	1.95E-04

Table M-541. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	676.	-1.34E+03	2.75E+03	-1.34E+03	2.74E+03	-403.	412.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.37E+03	3.48E+04	-1.23E+03	1.18E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.42E+03	1.18E+05	-2.12E+03	1.88E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.43E+03	2.14E+05	-2.67E+03	2.13E+03
65.	1.58E+05	-1.34E+03	2.43E+05	-1.14E+03	2.42E+05	-2.45E+03	1.28E+03

Table M-542. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	676.	-1.34E+03	2.75E+03	-1.34E+03	2.74E+03	-403.	412.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.37E+03	3.48E+04	-1.23E+03	1.18E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.42E+03	1.18E+05	-2.12E+03	1.88E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.43E+03	2.14E+05	-2.67E+03	2.13E+03
65.	1.58E+05	-1.34E+03	2.43E+05	-1.14E+03	2.42E+05	-2.45E+03	1.28E+03



TASK 1/ROLL MOTION/MODEL 5613

Table M-543. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-544. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	831.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	658.	5.97E+05	-5.00E+03	4.17E+03

# TASK 1/ROLL MOTION/MODEL 5613

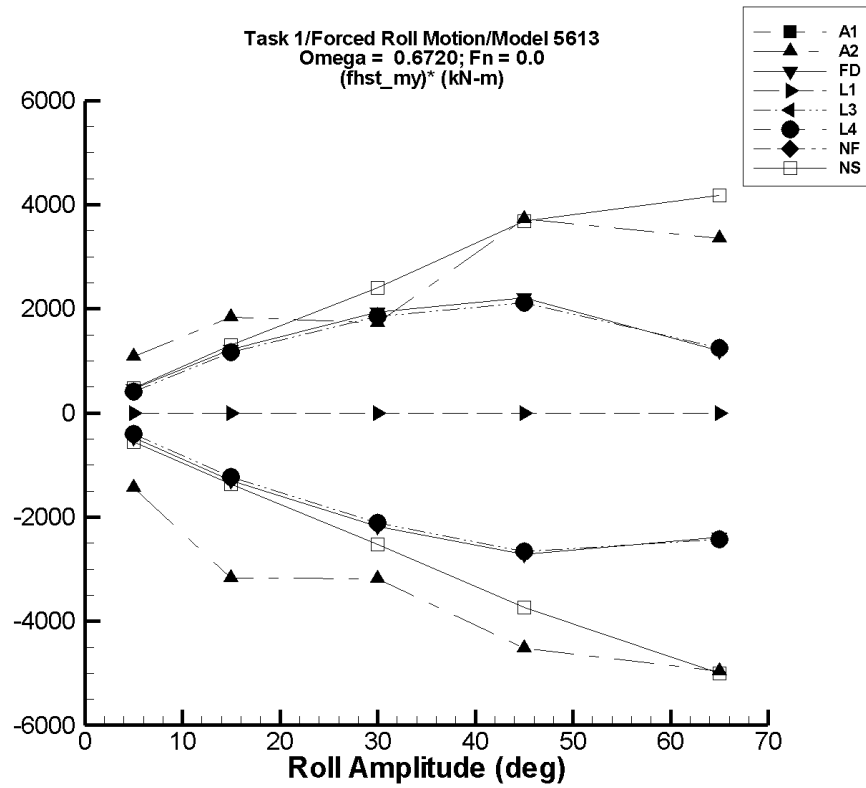


Figure M-69. Minimum and Maximum of  $(M_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

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Table M-545. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-546. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.2	1.33E+04	120.	1.28E+04	-1.44E+03	1.09E+03
15.	4.87E+04	-37.9	7.75E+04	1.03E+03	7.64E+04	-3.18E+03	1.85E+03
30.	1.02E+05	-36.9	1.56E+05	6.12E+03	1.54E+05	-3.19E+03	1.73E+03
45.	2.13E+05	-20.2	3.86E+05	9.39E+03	3.81E+05	-4.53E+03	3.73E+03
65.	3.36E+05	75.6	5.53E+05	1.35E+04	5.54E+05	-4.96E+03	3.35E+03

Table M-547. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.62E+03	4.16E+03	8.99E+03	4.25E+03	8.92E+03	-473.	459.
15.	2.42E+04	4.16E+03	4.32E+04	4.74E+03	4.26E+04	-1.30E+03	1.23E+03
30.	7.19E+04	4.16E+03	1.32E+05	6.45E+03	1.30E+05	-2.18E+03	1.94E+03
45.	1.32E+05	4.16E+03	2.33E+05	9.39E+03	2.32E+05	-2.72E+03	2.22E+03
65.	1.71E+05	4.16E+03	2.59E+05	1.57E+04	2.49E+05	-2.39E+03	1.19E+03

Table M-548. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.60E-08	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.84E-04	3.83E-04
15.	-2.11E-08	-5.60E-03	5.60E-03	-5.58E-03	5.58E-03	-3.72E-04	3.72E-04
30.	2.99E-07	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.34E-04	3.34E-04
45.	9.67E-07	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.73E-04	2.73E-04
65.	1.23E-06	-1.24E-02	1.24E-02	-1.23E-02	1.23E-02	-1.90E-04	1.90E-04

Table M-549. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	675.	-1.34E+03	2.75E+03	-1.34E+03	2.71E+03	-402.	408.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.34E+03	3.47E+04	-1.23E+03	1.17E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.26E+03	1.18E+05	-2.11E+03	1.86E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-908.	2.14E+05	-2.66E+03	2.11E+03
65.	1.58E+05	-1.34E+03	2.43E+05	336.	2.39E+05	-2.43E+03	1.24E+03

Table M-550. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	675.	-1.34E+03	2.75E+03	-1.34E+03	2.71E+03	-402.	408.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.34E+03	3.47E+04	-1.23E+03	1.17E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.26E+03	1.18E+05	-2.11E+03	1.86E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-908.	2.14E+05	-2.66E+03	2.11E+03
65.	1.58E+05	-1.34E+03	2.43E+05	336.	2.39E+05	-2.43E+03	1.24E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-551. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-552. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	831.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	659.	5.97E+05	-5.00E+03	4.18E+03

# TASK 1/ROLL MOTION/MODEL 5613

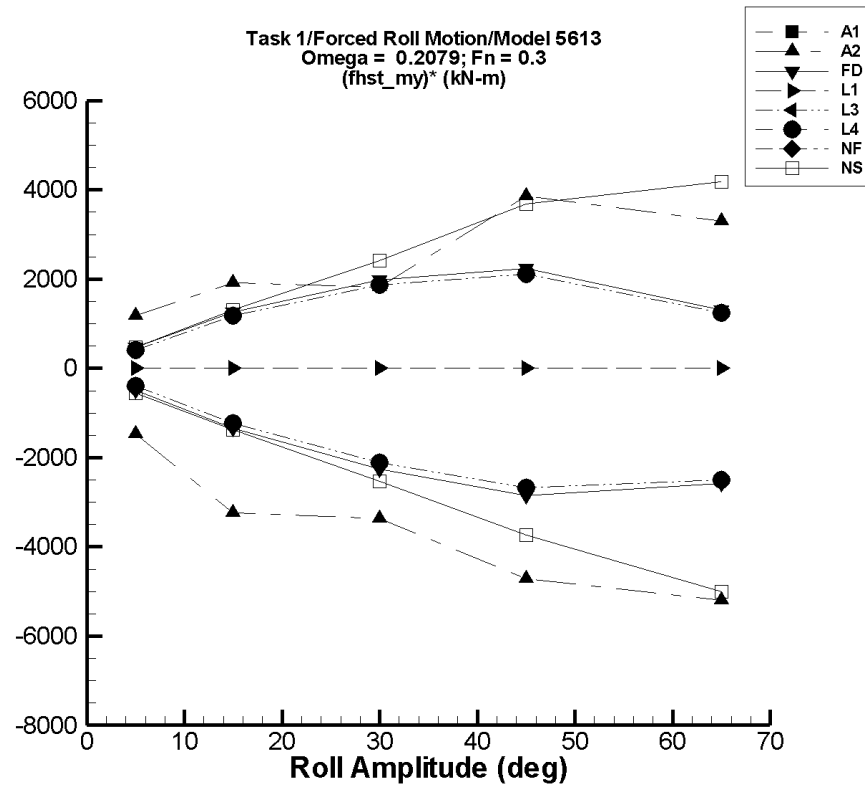


Figure M-70. Minimum and Maximum of  $(M_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-553. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-554. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.2	1.33E+04	-69.8	1.32E+04	-1.48E+03	1.18E+03
15.	4.84E+04	-38.0	7.75E+04	-133.	7.71E+04	-3.24E+03	1.91E+03
30.	1.01E+05	-38.0	1.56E+05	428.	1.56E+05	-3.36E+03	1.81E+03
45.	2.13E+05	-32.1	3.87E+05	448.	3.86E+05	-4.71E+03	3.86E+03
65.	3.39E+05	8.57	5.53E+05	340.	5.53E+05	-5.20E+03	3.30E+03



Table M-555. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.62E+03	4.16E+03	8.99E+03	4.17E+03	8.98E+03	-490.	472.
15.	2.43E+04	4.16E+03	4.32E+04	4.15E+03	4.31E+04	-1.34E+03	1.26E+03
30.	7.20E+04	4.17E+03	1.32E+05	4.12E+03	1.32E+05	-2.26E+03	1.98E+03
45.	1.32E+05	4.18E+03	2.33E+05	4.16E+03	2.33E+05	-2.85E+03	2.24E+03
65.	1.73E+05	4.18E+03	2.59E+05	4.81E+03	2.58E+05	-2.58E+03	1.31E+03

Table M-556. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.12E-07	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.85E-04	3.85E-04
15.	-3.00E-06	-5.60E-03	5.60E-03	-5.60E-03	5.60E-03	-3.73E-04	3.73E-04
30.	-2.35E-05	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.34E-04	3.35E-04
45.	-7.65E-05	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.72E-04	2.75E-04
65.	-2.16E-04	-1.24E-02	1.24E-02	-1.24E-02	1.24E-02	-1.88E-04	1.94E-04

Table M-557. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	674.	-1.34E+03	2.75E+03	-1.34E+03	2.75E+03	-402.	415.
15.	1.72E+04	-1.34E+03	3.49E+04	-1.32E+03	3.49E+04	-1.23E+03	1.18E+03
30.	6.24E+04	-1.34E+03	1.19E+05	-1.26E+03	1.19E+05	-2.12E+03	1.87E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.14E+03	2.15E+05	-2.68E+03	2.11E+03
65.	1.62E+05	-1.34E+03	2.43E+05	-912.	2.42E+05	-2.50E+03	1.24E+03

Table M-558. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	674.	-1.34E+03	2.75E+03	-1.34E+03	2.75E+03	-402.	415.
15.	1.72E+04	-1.34E+03	3.49E+04	-1.32E+03	3.49E+04	-1.23E+03	1.18E+03
30.	6.24E+04	-1.34E+03	1.19E+05	-1.26E+03	1.19E+05	-2.12E+03	1.87E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.14E+03	2.15E+05	-2.68E+03	2.11E+03
65.	1.62E+05	-1.34E+03	2.43E+05	-912.	2.42E+05	-2.50E+03	1.24E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-559. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-560. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	830.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	660.	5.97E+05	-5.00E+03	4.18E+03

# TASK 1/ROLL MOTION/MODEL 5613

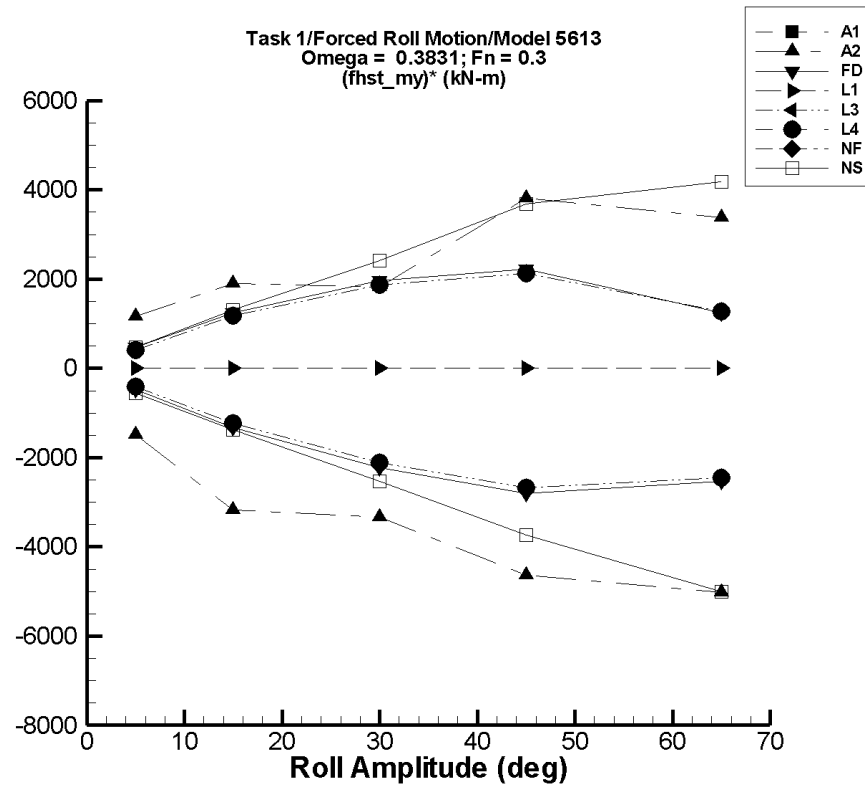


Figure M-71. Minimum and Maximum of  $(M_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-561. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-562. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.3	1.33E+04	-110.	1.32E+04	-1.49E+03	1.17E+03
15.	4.84E+04	-38.1	7.75E+04	642.	7.68E+04	-3.18E+03	1.90E+03
30.	1.01E+05	-38.0	1.56E+05	1.19E+03	1.56E+05	-3.33E+03	1.83E+03
45.	2.13E+05	-37.9	3.86E+05	4.08E+03	3.84E+05	-4.63E+03	3.81E+03
65.	3.34E+05	-2.11E+05	5.53E+05	7.83E+03	5.54E+05	-5.02E+03	3.38E+03

Table M-563. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.62E+03	4.16E+03	8.99E+03	4.22E+03	8.96E+03	-481.	467.
15.	2.43E+04	4.18E+03	4.32E+04	4.45E+03	4.29E+04	-1.32E+03	1.24E+03
30.	7.21E+04	4.20E+03	1.32E+05	5.18E+03	1.31E+05	-2.23E+03	1.96E+03
45.	1.32E+05	4.22E+03	2.33E+05	6.44E+03	2.32E+05	-2.80E+03	2.22E+03
65.	1.74E+05	4.26E+03	2.59E+05	8.90E+03	2.55E+05	-2.54E+03	1.25E+03

Table M-564. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.61E-07	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.85E-04	3.85E-04
15.	-4.13E-06	-5.60E-03	5.60E-03	-5.59E-03	5.59E-03	-3.73E-04	3.73E-04
30.	-3.22E-05	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.33E-04	3.35E-04
45.	-1.05E-04	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.71E-04	2.76E-04
65.	-2.94E-04	-1.24E-02	1.24E-02	-1.24E-02	1.24E-02	-1.86E-04	1.95E-04

Table M-565. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	676.	-1.34E+03	2.75E+03	-1.34E+03	2.74E+03	-403.	412.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.37E+03	3.48E+04	-1.23E+03	1.18E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.42E+03	1.18E+05	-2.12E+03	1.88E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.43E+03	2.14E+05	-2.67E+03	2.13E+03
65.	1.58E+05	-1.34E+03	2.43E+05	-1.14E+03	2.42E+05	-2.45E+03	1.28E+03

Table M-566. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	676.	-1.34E+03	2.75E+03	-1.34E+03	2.74E+03	-403.	412.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.37E+03	3.48E+04	-1.23E+03	1.18E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.42E+03	1.18E+05	-2.12E+03	1.88E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.43E+03	2.14E+05	-2.67E+03	2.13E+03
65.	1.58E+05	-1.34E+03	2.43E+05	-1.14E+03	2.42E+05	-2.45E+03	1.28E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-567. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-568. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	831.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	658.	5.97E+05	-5.00E+03	4.17E+03



# TASK 1/ROLL MOTION/MODEL 5613

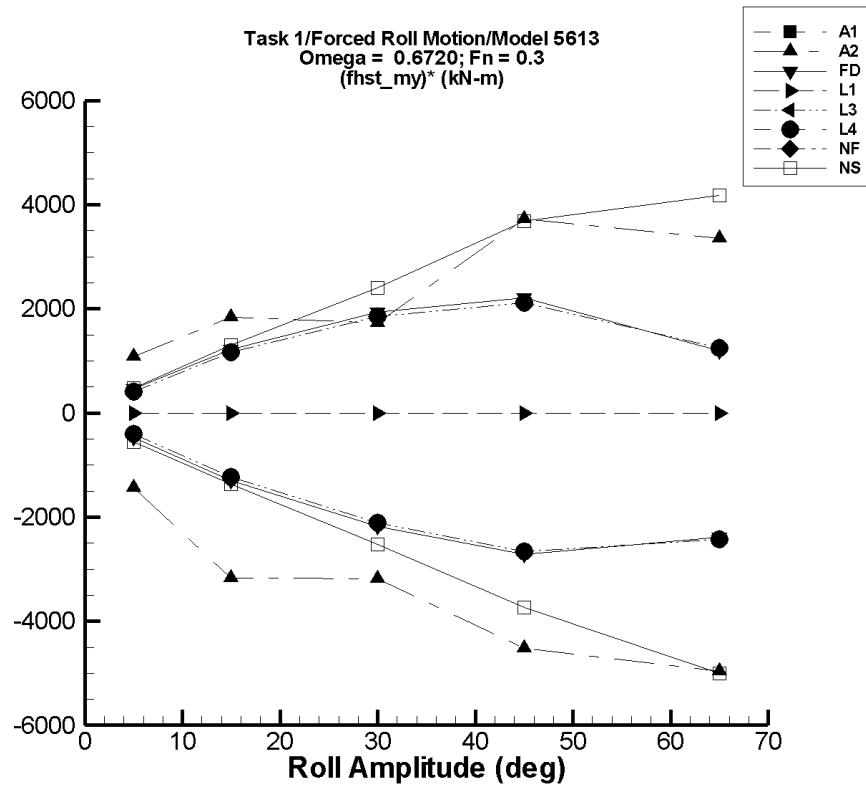


Figure M-72. Minimum and Maximum of  $(M_y^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-569. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-570. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.2	1.33E+04	120.	1.28E+04	-1.44E+03	1.09E+03
15.	4.87E+04	-37.9	7.75E+04	1.03E+03	7.64E+04	-3.18E+03	1.85E+03
30.	1.02E+05	-36.9	1.56E+05	6.12E+03	1.54E+05	-3.19E+03	1.73E+03
45.	2.13E+05	-20.2	3.86E+05	9.39E+03	3.81E+05	-4.53E+03	3.73E+03
65.	3.36E+05	75.6	5.53E+05	1.35E+04	5.54E+05	-4.96E+03	3.35E+03

Table M-571. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.62E+03	4.16E+03	8.99E+03	4.25E+03	8.92E+03	-473.	459.
15.	2.42E+04	4.16E+03	4.32E+04	4.74E+03	4.26E+04	-1.30E+03	1.23E+03
30.	7.19E+04	4.16E+03	1.32E+05	6.45E+03	1.30E+05	-2.18E+03	1.94E+03
45.	1.32E+05	4.16E+03	2.33E+05	9.39E+03	2.32E+05	-2.72E+03	2.22E+03
65.	1.71E+05	4.16E+03	2.59E+05	1.57E+04	2.49E+05	-2.39E+03	1.19E+03

Table M-572. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.60E-08	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.84E-04	3.83E-04
15.	-2.11E-08	-5.60E-03	5.60E-03	-5.58E-03	5.58E-03	-3.72E-04	3.72E-04
30.	2.99E-07	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.34E-04	3.34E-04
45.	9.67E-07	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.73E-04	2.73E-04
65.	1.23E-06	-1.24E-02	1.24E-02	-1.23E-02	1.23E-02	-1.90E-04	1.90E-04

Table M-573. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	675.	-1.34E+03	2.75E+03	-1.34E+03	2.71E+03	-402.	408.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.34E+03	3.47E+04	-1.23E+03	1.17E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.26E+03	1.18E+05	-2.11E+03	1.86E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-908.	2.14E+05	-2.66E+03	2.11E+03
65.	1.58E+05	-1.34E+03	2.43E+05	336.	2.39E+05	-2.43E+03	1.24E+03

Table M-574. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$ <b>Mean</b> (kN-m)	<b>Unfiltered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>M_y^{\text{hst}}</math></b>		<b>Filtered <math>(M_y^{\text{hst}})^*</math></b>	
		<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m)	<b>Max.</b> (kN-m)	<b>Min.</b> (kN-m/°)	<b>Max.</b> (kN-m/°)
5.	675.	-1.34E+03	2.75E+03	-1.34E+03	2.71E+03	-402.	408.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.34E+03	3.47E+04	-1.23E+03	1.17E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.26E+03	1.18E+05	-2.11E+03	1.86E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-908.	2.14E+05	-2.66E+03	2.11E+03
65.	1.58E+05	-1.34E+03	2.43E+05	336.	2.39E+05	-2.43E+03	1.24E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-575. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-576. Minimum and Maximum of  $M_y^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{hst}} \rangle$	Unfiltered $M_y^{\text{hst}}$		Filtered $M_y^{\text{hst}}$		Filtered $(M_y^{\text{hst}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	831.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	659.	5.97E+05	-5.00E+03	4.18E+03

# TASK 1/ROLL MOTION/MODEL 5613

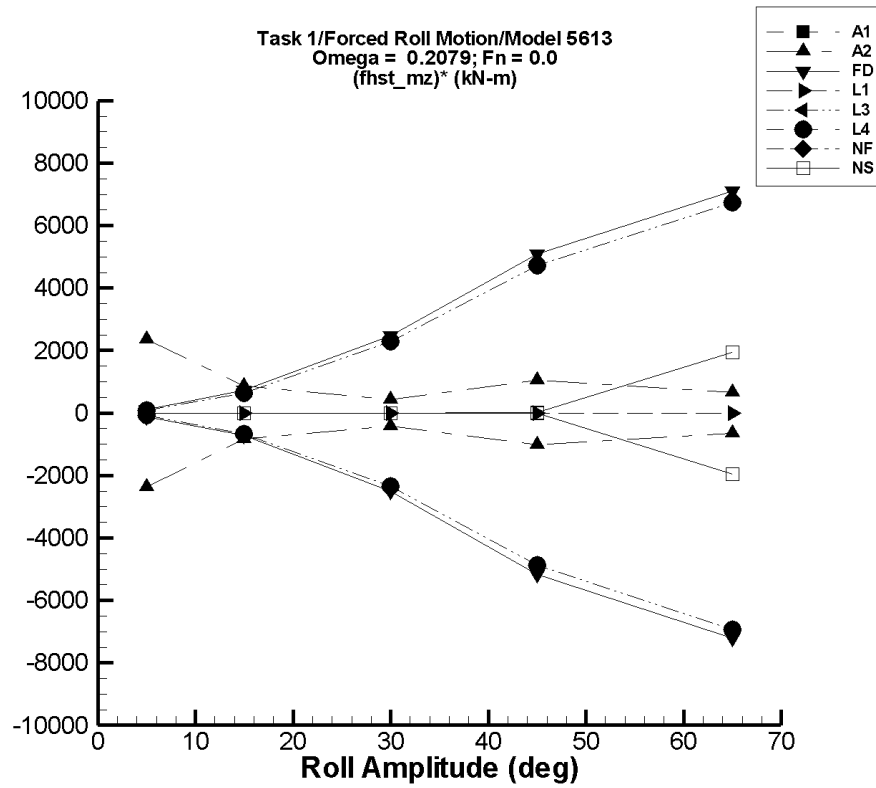


Figure M-73. Minimum and Maximum of  $(M_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-577. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-578. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	35.2	-1.18E+04	1.18E+04	-1.18E+04	1.18E+04	-2.37E+03	2.35E+03
15.	-249.	-1.28E+04	1.28E+04	-1.26E+04	1.26E+04	-824.	856.
30.	-147.	-1.35E+04	1.35E+04	-1.26E+04	1.25E+04	-415.	423.
45.	-489.	-5.03E+04	5.04E+04	-4.63E+04	4.62E+04	-1.02E+03	1.04E+03
65.	-156.	-4.93E+04	4.99E+04	-4.27E+04	4.28E+04	-654.	662.

Table M-579. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.48	-555.	555.	-554.	554.	-112.	110.
15.	79.0	-1.09E+04	1.09E+04	-1.09E+04	1.09E+04	-731.	720.
30.	540.	-7.50E+04	7.50E+04	-7.48E+04	7.48E+04	-2.51E+03	2.47E+03
45.	1.67E+03	-2.32E+05	2.32E+05	-2.31E+05	2.31E+05	-5.17E+03	5.09E+03
65.	3.15E+03	-4.66E+05	4.66E+05	-4.65E+05	4.65E+05	-7.21E+03	7.11E+03

Table M-580. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.43E-05	1.77E-10	1.68E-04	1.06E-07	1.68E-04	-1.68E-05	1.68E-05
15.	7.53E-04	1.59E-09	1.50E-03	9.55E-07	1.50E-03	-5.01E-05	4.98E-05
30.	2.93E-03	6.36E-09	5.80E-03	3.83E-06	5.79E-03	-9.77E-05	9.53E-05
45.	6.32E-03	1.44E-08	1.23E-02	8.62E-06	1.23E-02	-1.40E-04	1.33E-04
65.	1.21E-02	2.99E-08	2.28E-02	1.81E-05	2.28E-02	-1.86E-04	1.64E-04



Table M-581. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.55	-404.	404.	-404.	404.	-81.9	79.7
15.	146.	-9.83E+03	9.83E+03	-9.82E+03	9.82E+03	-664.	645.
30.	1.02E+03	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-2.35E+03	2.28E+03
45.	3.15E+03	-2.16E+05	2.16E+05	-2.16E+05	2.16E+05	-4.86E+03	4.72E+03
65.	5.87E+03	-4.45E+05	4.45E+05	-4.44E+05	4.44E+05	-6.93E+03	6.75E+03

Table M-582. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.55	-404.	404.	-404.	404.	-81.9	79.7
15.	146.	-9.83E+03	9.83E+03	-9.82E+03	9.82E+03	-664.	645.
30.	1.02E+03	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-2.35E+03	2.28E+03
45.	3.15E+03	-2.16E+05	2.16E+05	-2.16E+05	2.16E+05	-4.86E+03	4.72E+03
65.	5.87E+03	-4.45E+05	4.45E+05	-4.44E+05	4.44E+05	-6.93E+03	6.75E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-583. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-584. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.90E-03	-0.905	0.900	-0.796	0.801	-0.160	0.160
15.	-1.67E-03	-0.900	0.873	-0.411	0.401	-2.73E-02	2.69E-02
30.	-1.98E-03	-0.921	0.902	-0.294	0.302	-9.72E-03	1.01E-02
45.	8.61	-682.	795.	-633.	743.	-14.3	16.3
65.	-612.	-1.29E+05	1.26E+05	-1.28E+05	1.25E+05	-1.96E+03	1.93E+03

# TASK 1/ROLL MOTION/MODEL 5613

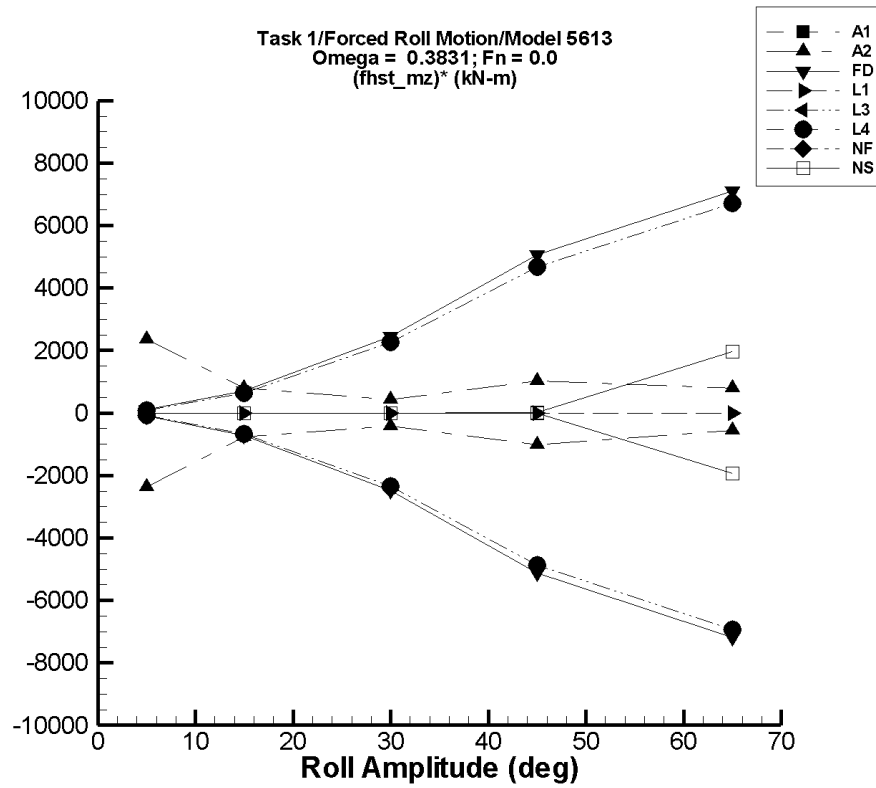


Figure M-74. Minimum and Maximum of  $(M_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

TASK 1/ROLL MOTION/MODEL 5613

Table M-585. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-586. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.2	-1.18E+04	1.18E+04	-1.18E+04	1.18E+04	-2.37E+03	2.35E+03
15.	-220.	-1.28E+04	1.28E+04	-1.17E+04	1.17E+04	-767.	796.
30.	-181.	-1.33E+04	1.33E+04	-1.25E+04	1.24E+04	-411.	420.
45.	-477.	-5.04E+04	5.04E+04	-4.59E+04	4.59E+04	-1.01E+03	1.03E+03
65.	803.	-5.41E+04	1.70E+05	-3.48E+04	5.32E+04	-547.	805.

Table M-587. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.18	-555.	555.	-550.	551.	-111.	109.
15.	77.8	-1.09E+04	1.09E+04	-1.08E+04	1.08E+04	-725.	715.
30.	538.	-7.50E+04	7.50E+04	-7.42E+04	7.42E+04	-2.49E+03	2.46E+03
45.	1.66E+03	-2.32E+05	2.32E+05	-2.29E+05	2.29E+05	-5.13E+03	5.06E+03
65.	2.64E+03	-4.66E+05	4.66E+05	-4.64E+05	4.64E+05	-7.18E+03	7.10E+03

Table M-588. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.43E-05	7.28E-10	1.68E-04	-1.23E-07	1.68E-04	-1.69E-05	1.68E-05
15.	7.53E-04	6.55E-09	1.50E-03	-1.08E-06	1.50E-03	-5.02E-05	4.96E-05
30.	2.93E-03	2.62E-08	5.80E-03	-4.03E-06	5.78E-03	-9.79E-05	9.51E-05
45.	6.31E-03	5.90E-08	1.23E-02	-7.97E-06	1.23E-02	-1.40E-04	1.32E-04
65.	1.21E-02	1.23E-07	2.28E-02	-1.23E-05	2.27E-02	-1.86E-04	1.64E-04

TASK 1/ROLL MOTION/MODEL 5613

Table M-589. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.63	-404.	404.	-403.	403.	-82.1	79.0
15.	200.	-9.83E+03	9.83E+03	-9.79E+03	9.79E+03	-666.	640.
30.	1.39E+03	-6.95E+04	6.95E+04	-6.92E+04	6.92E+04	-2.35E+03	2.26E+03
45.	4.30E+03	-2.16E+05	2.16E+05	-2.15E+05	2.15E+05	-4.87E+03	4.68E+03
65.	7.36E+03	-4.44E+05	4.44E+05	-4.44E+05	4.44E+05	-6.94E+03	6.71E+03

Table M-590. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.63	-404.	404.	-403.	403.	-82.1	79.0
15.	200.	-9.83E+03	9.83E+03	-9.79E+03	9.79E+03	-666.	640.
30.	1.39E+03	-6.95E+04	6.95E+04	-6.92E+04	6.92E+04	-2.35E+03	2.26E+03
45.	4.30E+03	-2.16E+05	2.16E+05	-2.15E+05	2.15E+05	-4.87E+03	4.68E+03
65.	7.36E+03	-4.44E+05	4.44E+05	-4.44E+05	4.44E+05	-6.94E+03	6.71E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-591. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-592. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-8.70E-04	-0.893	0.876	-0.798	0.796	-0.159	0.159
15.	-2.41E-04	-0.868	0.851	-0.393	0.404	-2.62E-02	2.69E-02
30.	-1.96E-03	-0.887	0.914	-0.298	0.297	-9.86E-03	9.98E-03
45.	8.62	-681.	795.	-633.	742.	-14.3	16.3
65.	191.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.95E+03

# TASK 1/ROLL MOTION/MODEL 5613

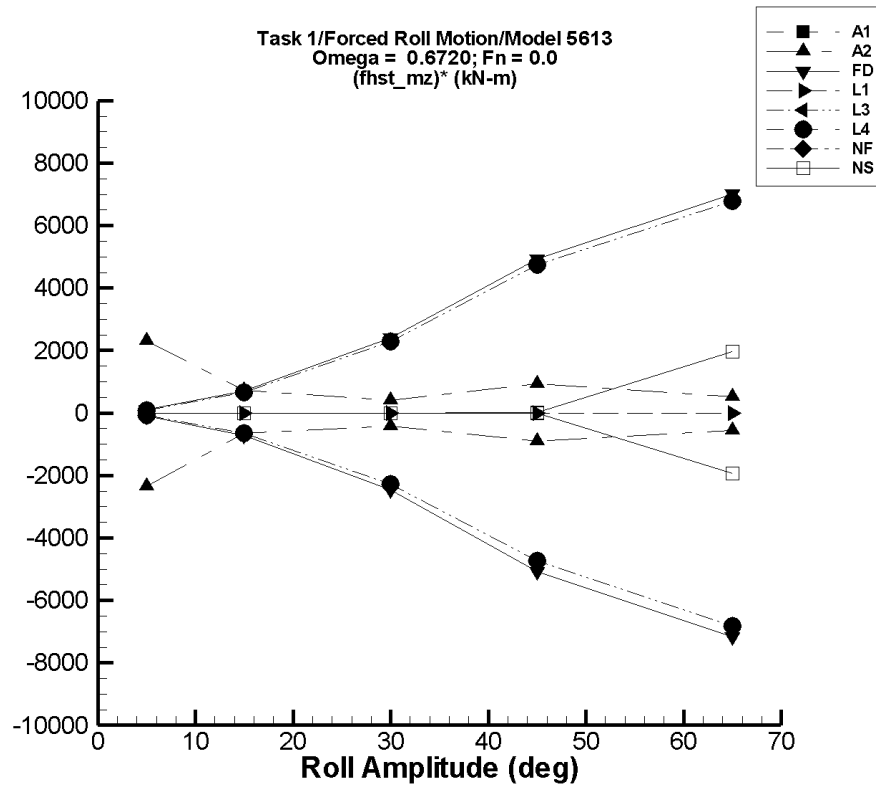


Figure M-75. Minimum and Maximum of  $(M_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.



TASK 1/ROLL MOTION/MODEL 5613

Table M-593. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-594. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	84.8	-1.18E+04	1.18E+04	-1.17E+04	1.17E+04	-2.35E+03	2.32E+03
15.	-570.	-1.28E+04	1.28E+04	-1.04E+04	1.03E+04	-652.	726.
30.	173.	-1.35E+04	1.33E+04	-1.23E+04	1.24E+04	-417.	407.
45.	-704.	-4.87E+04	4.93E+04	-4.18E+04	4.18E+04	-914.	944.
65.	786.	-4.98E+04	6.84E+04	-3.52E+04	3.44E+04	-554.	518.

Table M-595. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	10.2	-555.	555.	-541.	544.	-110.	107.
15.	200.	-1.09E+04	1.09E+04	-1.06E+04	1.07E+04	-718.	697.
30.	1.37E+03	-7.50E+04	7.50E+04	-7.26E+04	7.32E+04	-2.47E+03	2.40E+03
45.	4.22E+03	-2.32E+05	2.32E+05	-2.24E+05	2.26E+05	-5.08E+03	4.93E+03
65.	6.90E+03	-4.66E+05	4.66E+05	-4.60E+05	4.62E+05	-7.18E+03	7.01E+03

Table M-596. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.42E-05	3.84E-12	1.68E-04	2.20E-08	1.67E-04	-1.68E-05	1.66E-05
15.	7.52E-04	3.41E-11	1.50E-03	2.43E-07	1.49E-03	-5.01E-05	4.91E-05
30.	2.93E-03	1.37E-10	5.80E-03	1.57E-06	5.75E-03	-9.77E-05	9.41E-05
45.	6.31E-03	3.07E-10	1.23E-02	5.71E-06	1.22E-02	-1.40E-04	1.31E-04
65.	1.21E-02	6.36E-10	2.28E-02	2.05E-05	2.26E-02	-1.85E-04	1.63E-04

Table M-597. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.214	-404.	405.	-400.	400.	-79.9	80.0
15.	-1.85	-9.83E+03	9.83E+03	-9.72E+03	9.71E+03	-648.	648.
30.	-7.07	-6.94E+04	6.94E+04	-6.87E+04	6.86E+04	-2.29E+03	2.29E+03
45.	-16.2	-2.16E+05	2.16E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	792.	-4.44E+05	4.44E+05	-4.42E+05	4.42E+05	-6.82E+03	6.79E+03

Table M-598. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.214	-404.	405.	-400.	400.	-79.9	80.0
15.	-1.85	-9.83E+03	9.83E+03	-9.72E+03	9.71E+03	-648.	648.
30.	-7.07	-6.94E+04	6.94E+04	-6.87E+04	6.86E+04	-2.29E+03	2.29E+03
45.	-16.2	-2.16E+05	2.16E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	792.	-4.44E+05	4.44E+05	-4.42E+05	4.42E+05	-6.82E+03	6.79E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-599. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-600. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.09E-03	-0.874	0.923	-0.792	0.803	-0.159	0.160
15.	-1.94E-03	-0.865	0.858	-0.400	0.407	-2.65E-02	2.72E-02
30.	1.04E-04	-0.904	0.905	-0.305	0.303	-1.02E-02	1.01E-02
45.	8.61	-681.	795.	-633.	742.	-14.3	16.3
65.	192.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.95E+03

# TASK 1/ROLL MOTION/MODEL 5613

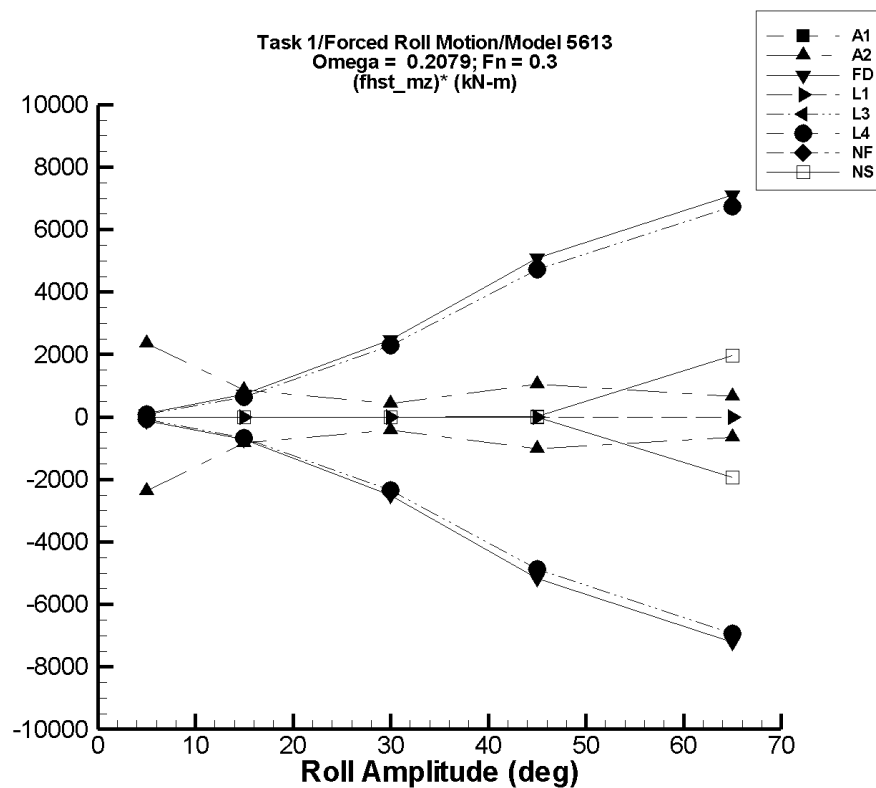


Figure M-76. Minimum and Maximum of  $(M_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-601. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-602. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	37.2	-1.18E+04	1.18E+04	-1.18E+04	1.18E+04	-2.37E+03	2.35E+03
15.	-249.	-1.28E+04	1.28E+04	-1.26E+04	1.26E+04	-824.	856.
30.	-147.	-1.35E+04	1.35E+04	-1.26E+04	1.25E+04	-415.	423.
45.	-489.	-5.03E+04	5.04E+04	-4.63E+04	4.62E+04	-1.02E+03	1.04E+03
65.	-156.	-4.93E+04	4.99E+04	-4.27E+04	4.28E+04	-654.	662.

Table M-603. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.48	-555.	555.	-554.	554.	-112.	110.
15.	79.0	-1.09E+04	1.09E+04	-1.09E+04	1.09E+04	-731.	720.
30.	540.	-7.50E+04	7.50E+04	-7.48E+04	7.48E+04	-2.51E+03	2.47E+03
45.	1.67E+03	-2.32E+05	2.32E+05	-2.31E+05	2.31E+05	-5.17E+03	5.09E+03
65.	3.15E+03	-4.66E+05	4.66E+05	-4.65E+05	4.65E+05	-7.21E+03	7.11E+03

Table M-604. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.43E-05	1.77E-10	1.68E-04	1.06E-07	1.68E-04	-1.68E-05	1.68E-05
15.	7.53E-04	1.59E-09	1.50E-03	9.55E-07	1.50E-03	-5.01E-05	4.98E-05
30.	2.93E-03	6.36E-09	5.80E-03	3.83E-06	5.79E-03	-9.77E-05	9.53E-05
45.	6.32E-03	1.44E-08	1.23E-02	8.62E-06	1.23E-02	-1.40E-04	1.33E-04
65.	1.21E-02	2.99E-08	2.28E-02	1.81E-05	2.28E-02	-1.86E-04	1.64E-04

TASK 1/ROLL MOTION/MODEL 5613

Table M-605. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.55	-405.	405.	-404.	404.	-81.9	79.7
15.	146.	-9.83E+03	9.83E+03	-9.82E+03	9.82E+03	-664.	645.
30.	1.02E+03	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-2.35E+03	2.28E+03
45.	3.15E+03	-2.16E+05	2.16E+05	-2.16E+05	2.16E+05	-4.86E+03	4.72E+03
65.	5.87E+03	-4.45E+05	4.45E+05	-4.44E+05	4.44E+05	-6.93E+03	6.75E+03

Table M-606. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.55	-405.	405.	-404.	404.	-81.9	79.7
15.	146.	-9.83E+03	9.83E+03	-9.82E+03	9.82E+03	-664.	645.
30.	1.02E+03	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-2.35E+03	2.28E+03
45.	3.15E+03	-2.16E+05	2.16E+05	-2.16E+05	2.16E+05	-4.86E+03	4.72E+03
65.	5.87E+03	-4.45E+05	4.45E+05	-4.44E+05	4.44E+05	-6.93E+03	6.75E+03



TASK 1/ROLL MOTION/MODEL 5613

Table M-607. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-608. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.90E-03	-0.905	0.900	-0.796	0.801	-0.160	0.160
15.	-1.67E-03	-0.900	0.873	-0.411	0.401	-2.73E-02	2.69E-02
30.	-1.98E-03	-0.921	0.902	-0.294	0.302	-9.72E-03	1.01E-02
45.	8.61	-682.	795.	-633.	743.	-14.3	16.3
65.	194.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.96E+03

# TASK 1/ROLL MOTION/MODEL 5613

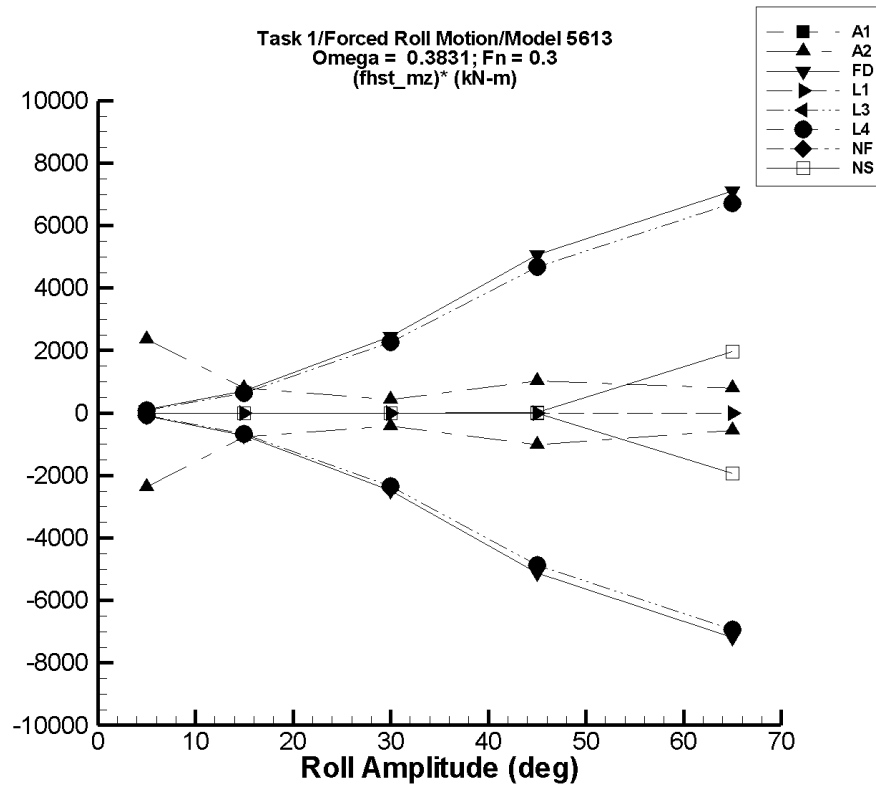


Figure M-77. Minimum and Maximum of  $(M_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-609. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-610. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.2	-1.18E+04	1.18E+04	-1.18E+04	1.18E+04	-2.37E+03	2.35E+03
15.	-220.	-1.28E+04	1.28E+04	-1.17E+04	1.17E+04	-767.	796.
30.	-181.	-1.33E+04	1.33E+04	-1.25E+04	1.24E+04	-411.	420.
45.	-477.	-5.04E+04	5.04E+04	-4.59E+04	4.59E+04	-1.01E+03	1.03E+03
65.	803.	-5.41E+04	1.70E+05	-3.48E+04	5.32E+04	-547.	805.

Table M-611. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.18	-555.	555.	-551.	551.	-111.	109.
15.	77.8	-1.09E+04	1.09E+04	-1.08E+04	1.08E+04	-725.	715.
30.	538.	-7.50E+04	7.50E+04	-7.42E+04	7.42E+04	-2.49E+03	2.46E+03
45.	1.66E+03	-2.32E+05	2.32E+05	-2.29E+05	2.29E+05	-5.13E+03	5.06E+03
65.	2.64E+03	-4.66E+05	4.66E+05	-4.64E+05	4.64E+05	-7.18E+03	7.10E+03

Table M-612. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.43E-05	7.28E-10	1.68E-04	-1.23E-07	1.68E-04	-1.69E-05	1.68E-05
15.	7.53E-04	6.55E-09	1.50E-03	-1.08E-06	1.50E-03	-5.02E-05	4.96E-05
30.	2.93E-03	2.62E-08	5.80E-03	-4.03E-06	5.78E-03	-9.79E-05	9.51E-05
45.	6.31E-03	5.90E-08	1.23E-02	-7.97E-06	1.23E-02	-1.40E-04	1.32E-04
65.	1.21E-02	1.23E-07	2.28E-02	-1.23E-05	2.27E-02	-1.86E-04	1.64E-04

Table M-613. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.62	-405.	405.	-403.	403.	-82.1	79.0
15.	200.	-9.83E+03	9.83E+03	-9.79E+03	9.79E+03	-666.	640.
30.	1.39E+03	-6.95E+04	6.95E+04	-6.92E+04	6.92E+04	-2.35E+03	2.26E+03
45.	4.30E+03	-2.16E+05	2.16E+05	-2.15E+05	2.15E+05	-4.87E+03	4.68E+03
65.	7.36E+03	-4.44E+05	4.44E+05	-4.44E+05	4.44E+05	-6.94E+03	6.71E+03

Table M-614. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.62	-405.	405.	-403.	403.	-82.1	79.0
15.	200.	-9.83E+03	9.83E+03	-9.79E+03	9.79E+03	-666.	640.
30.	1.39E+03	-6.95E+04	6.95E+04	-6.92E+04	6.92E+04	-2.35E+03	2.26E+03
45.	4.30E+03	-2.16E+05	2.16E+05	-2.15E+05	2.15E+05	-4.87E+03	4.68E+03
65.	7.36E+03	-4.44E+05	4.44E+05	-4.44E+05	4.44E+05	-6.94E+03	6.71E+03

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Table M-615. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-616. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-8.70E-04	-0.893	0.876	-0.798	0.796	-0.159	0.159
15.	-2.41E-04	-0.868	0.851	-0.393	0.404	-2.62E-02	2.69E-02
30.	-1.96E-03	-0.887	0.914	-0.298	0.297	-9.86E-03	9.98E-03
45.	8.62	-681.	795.	-633.	742.	-14.3	16.3
65.	191.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.95E+03

# TASK 1/ROLL MOTION/MODEL 5613

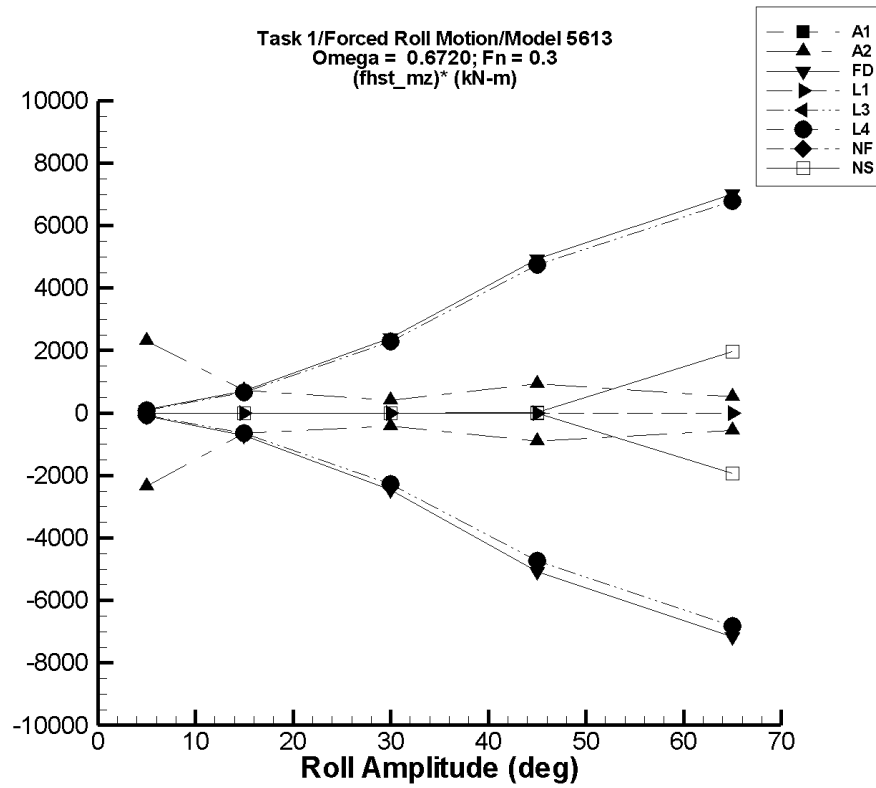


Figure M-78. Minimum and Maximum of  $(M_z^{hst})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

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Table M-617. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-618. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	84.8	-1.18E+04	1.18E+04	-1.17E+04	1.17E+04	-2.35E+03	2.32E+03
15.	-570.	-1.28E+04	1.28E+04	-1.04E+04	1.03E+04	-652.	726.
30.	173.	-1.35E+04	1.33E+04	-1.23E+04	1.24E+04	-417.	407.
45.	-704.	-4.87E+04	4.93E+04	-4.18E+04	4.18E+04	-914.	944.
65.	786.	-4.98E+04	6.84E+04	-3.52E+04	3.44E+04	-554.	518.



Table M-619. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	10.2	-555.	555.	-541.	544.	-110.	107.
15.	200.	-1.09E+04	1.09E+04	-1.06E+04	1.07E+04	-718.	697.
30.	1.37E+03	-7.50E+04	7.50E+04	-7.26E+04	7.32E+04	-2.47E+03	2.40E+03
45.	4.22E+03	-2.32E+05	2.32E+05	-2.24E+05	2.26E+05	-5.08E+03	4.93E+03
65.	6.90E+03	-4.66E+05	4.66E+05	-4.60E+05	4.62E+05	-7.18E+03	7.01E+03

Table M-620. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.42E-05	3.84E-12	1.68E-04	2.20E-08	1.67E-04	-1.68E-05	1.66E-05
15.	7.52E-04	3.41E-11	1.50E-03	2.43E-07	1.49E-03	-5.01E-05	4.91E-05
30.	2.93E-03	1.37E-10	5.80E-03	1.57E-06	5.75E-03	-9.77E-05	9.41E-05
45.	6.31E-03	3.07E-10	1.23E-02	5.71E-06	1.22E-02	-1.40E-04	1.31E-04
65.	1.21E-02	6.36E-10	2.28E-02	2.05E-05	2.26E-02	-1.85E-04	1.63E-04

Table M-621. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.278	-404.	404.	-400.	399.	-79.9	79.9
15.	-1.93	-9.83E+03	9.83E+03	-9.72E+03	9.71E+03	-648.	648.
30.	-7.09	-6.94E+04	6.94E+04	-6.87E+04	6.86E+04	-2.29E+03	2.29E+03
45.	-16.2	-2.16E+05	2.16E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	792.	-4.44E+05	4.44E+05	-4.42E+05	4.42E+05	-6.82E+03	6.79E+03

Table M-622. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.278	-404.	404.	-400.	399.	-79.9	79.9
15.	-1.93	-9.83E+03	9.83E+03	-9.72E+03	9.71E+03	-648.	648.
30.	-7.09	-6.94E+04	6.94E+04	-6.87E+04	6.86E+04	-2.29E+03	2.29E+03
45.	-16.2	-2.16E+05	2.16E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	792.	-4.44E+05	4.44E+05	-4.42E+05	4.42E+05	-6.82E+03	6.79E+03

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Table M-623. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-624. Minimum and Maximum of  $M_z^{\text{hst}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{hst}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{hst}}$		Filtered $M_z^{\text{hst}}$		Filtered $(M_z^{\text{hst}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.09E-03	-0.874	0.923	-0.792	0.803	-0.159	0.160
15.	-1.94E-03	-0.865	0.858	-0.400	0.407	-2.65E-02	2.72E-02
30.	1.04E-04	-0.904	0.905	-0.305	0.303	-1.02E-02	1.01E-02
45.	8.61	-681.	795.	-633.	742.	-14.3	16.3
65.	192.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.95E+03

# TASK 1/ROLL MOTION/MODEL 5613

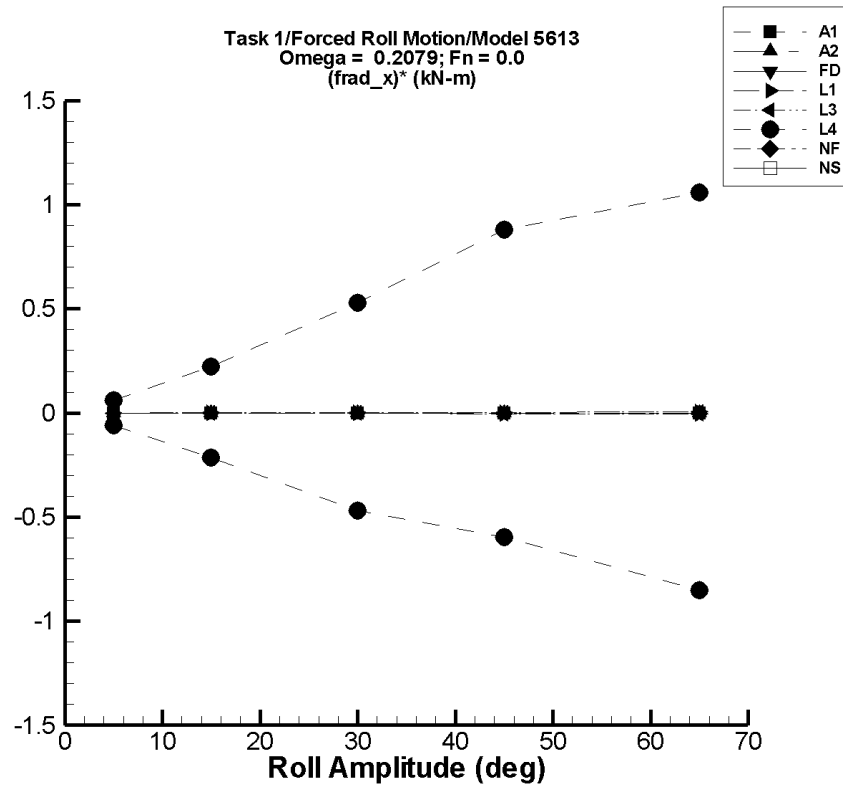


Figure M-79. Minimum and Maximum of  $(F_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M-625. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	-2.99E-07	-1.94E-05	1.98E-05	-1.13E-05	1.14E-05	-2.20E-06	2.34E-06
15.	-8.97E-07	-5.81E-05	5.92E-05	-3.38E-05	3.42E-05	-2.20E-06	2.34E-06
30.	-1.79E-06	-1.16E-04	1.18E-04	-6.77E-05	6.83E-05	-2.20E-06	2.34E-06
45.	-2.69E-06	-1.74E-04	1.78E-04	-1.02E-04	1.03E-04	-2.20E-06	2.34E-06
65.	-3.89E-06	-2.52E-04	2.57E-04	-1.47E-04	1.48E-04	-2.20E-06	2.34E-06

Table M-626. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	-2.99E-07	-1.94E-05	1.98E-05	-1.13E-05	1.14E-05	-2.20E-06	2.34E-06
15.	-8.97E-07	-5.81E-05	5.92E-05	-3.38E-05	3.42E-05	-2.20E-06	2.34E-06
30.	-1.79E-06	-1.16E-04	1.18E-04	-6.77E-05	6.83E-05	-2.20E-06	2.34E-06
45.	-2.69E-06	-1.74E-04	1.78E-04	-1.02E-04	1.03E-04	-2.20E-06	2.34E-06
65.	-3.89E-06	-2.52E-04	2.57E-04	-1.47E-04	1.48E-04	-2.20E-06	2.34E-06

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Table M-627. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-628. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.29E-04	-2.61E-03	1.51E-03	-2.53E-03	1.46E-03	-4.01E-04	3.98E-04
15.	-4.76E-03	-2.29E-02	1.33E-02	-2.27E-02	1.31E-02	-1.20E-03	1.19E-03
30.	-1.91E-02	-9.11E-02	5.28E-02	-9.07E-02	5.26E-02	-2.39E-03	2.39E-03
45.	-4.29E-02	-0.204	0.119	-0.204	0.118	-3.58E-03	3.58E-03
65.	-8.94E-02	-0.427	0.247	-0.426	0.247	-5.18E-03	5.17E-03

Table M-629. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered $(F_x^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
5.	-5.29E-04	-2.61E-03	1.51E-03	-2.53E-03	1.46E-03	-4.01E-04	3.98E-04
15.	-4.76E-03	-2.29E-02	1.33E-02	-2.27E-02	1.31E-02	-1.20E-03	1.19E-03
30.	-1.91E-02	-9.11E-02	5.28E-02	-9.07E-02	5.26E-02	-2.39E-03	2.39E-03
45.	-4.29E-02	-0.204	0.119	-0.204	0.118	-3.58E-03	3.58E-03
65.	-8.94E-02	-0.427	0.247	-0.426	0.247	-5.18E-03	5.17E-03

Table M-630. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered $(F_x^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
5.	7.36E-03	-0.615	0.642	-0.288	0.304	-5.91E-02	5.93E-02
15.	8.81E-02	-3.33	3.96	-3.15	3.44	-0.216	0.223
30.	0.472	-14.6	17.3	-13.6	16.4	-0.469	0.529
45.	1.82	-26.6	44.1	-25.1	41.4	-0.598	0.880
65.	8.35	-52.5	81.7	-46.9	77.1	-0.850	1.06

# TASK 1/ROLL MOTION/MODEL 5613

Table M-631. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-632. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—



# TASK 1/ROLL MOTION/MODEL 5613

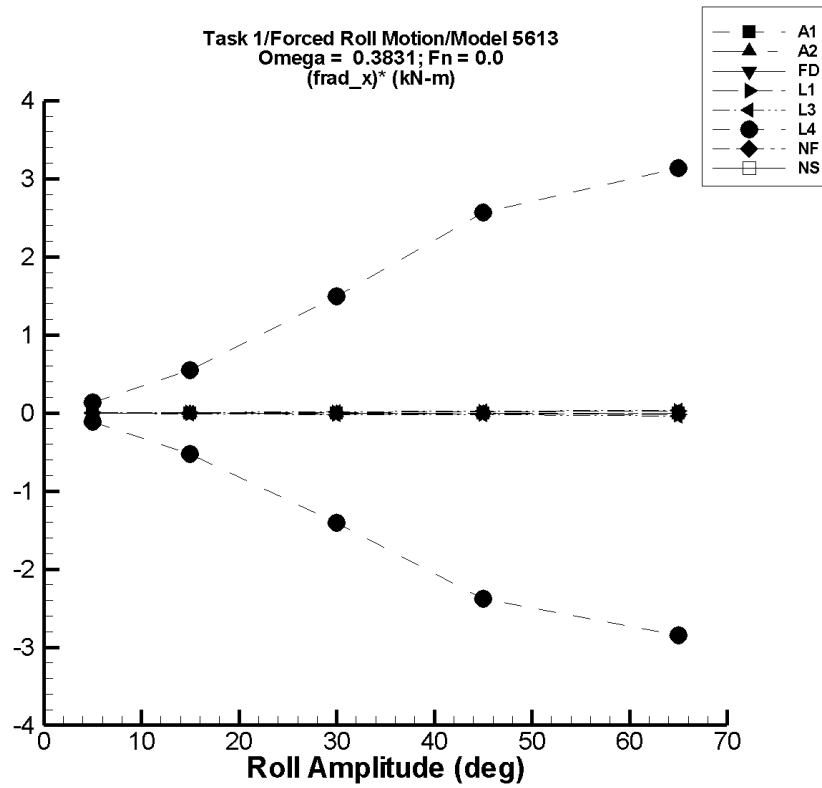


Figure M-80. Minimum and Maximum of  $(F_x^{rad})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M-633. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	-9.17E-07	-5.55E-05	6.35E-05	-2.69E-05	4.36E-05	-5.20E-06	8.91E-06
15.	-2.75E-06	-1.66E-04	1.90E-04	-8.07E-05	1.31E-04	-5.20E-06	8.91E-06
30.	-5.50E-06	-3.33E-04	3.81E-04	-1.61E-04	2.62E-04	-5.20E-06	8.91E-06
45.	-8.25E-06	-4.99E-04	5.71E-04	-2.42E-04	3.93E-04	-5.20E-06	8.91E-06
65.	-1.19E-05	-7.21E-04	8.25E-04	-3.50E-04	5.67E-04	-5.20E-06	8.91E-06

Table M-634. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	-9.17E-07	-5.55E-05	6.35E-05	-2.69E-05	4.36E-05	-5.20E-06	8.91E-06
15.	-2.75E-06	-1.66E-04	1.90E-04	-8.07E-05	1.31E-04	-5.20E-06	8.91E-06
30.	-5.50E-06	-3.33E-04	3.81E-04	-1.61E-04	2.62E-04	-5.20E-06	8.91E-06
45.	-8.25E-06	-4.99E-04	5.71E-04	-2.42E-04	3.93E-04	-5.20E-06	8.91E-06
65.	-4.92E-06	-8.24E-04	8.70E-04	-5.37E-04	4.49E-04	-8.18E-06	6.98E-06

TASK 1/ROLL MOTION/MODEL 5613

Table M-635. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-636. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-9.09E-03	-1.77E-02	-7.24E-04	-1.75E-02	-8.01E-04	-1.68E-03	1.66E-03
15.	-8.18E-02	-0.158	-6.85E-03	-0.157	-7.29E-03	-5.04E-03	4.97E-03
30.	-0.327	-0.632	-2.76E-02	-0.630	-2.92E-02	-1.01E-02	9.93E-03
45.	-0.736	-1.42	-6.16E-02	-1.42	-6.58E-02	-1.51E-02	1.49E-02
65.	-1.54	-2.97	-0.129	-2.96	-0.137	-2.18E-02	2.15E-02

Table M-637. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered $(F_x^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
5.	-9.09E-03	-2.36E-02	5.35E-03	-2.35E-02	5.23E-03	-2.89E-03	2.86E-03
15.	-8.18E-02	-0.213	4.78E-02	-0.212	4.71E-02	-8.67E-03	8.59E-03
30.	-0.327	-0.851	0.191	-0.847	0.188	-1.73E-02	1.72E-02
45.	-0.736	-1.91	0.431	-1.91	0.424	-2.60E-02	2.58E-02
65.	-1.54	-3.99	0.899	-3.98	0.885	-3.76E-02	3.72E-02

Table M-638. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered $(F_x^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
5.	3.11E-02	-1.35	1.35	-0.546	0.713	-0.115	0.136
15.	0.334	-8.38	9.62	-7.58	8.56	-0.528	0.548
30.	1.19	-44.4	51.3	-41.1	46.1	-1.41	1.50
45.	2.53	-115.	136.	-105.	118.	-2.38	2.57
65.	11.8	-201.	256.	-174.	216.	-2.85	3.13

# TASK 1/ROLL MOTION/MODEL 5613

Table M–639. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–640. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

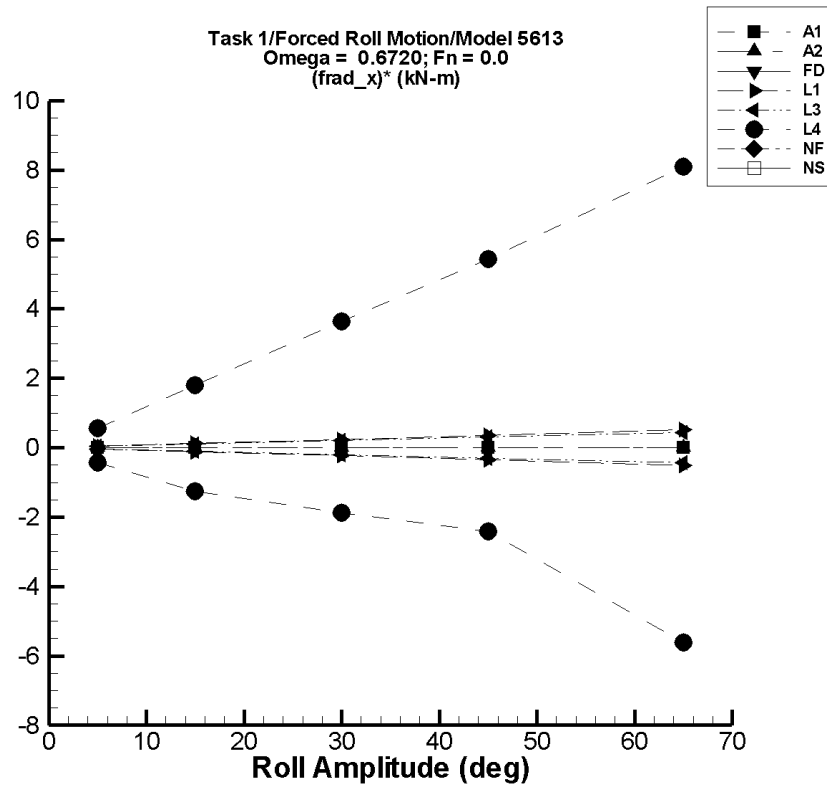


Figure M-81. Minimum and Maximum of  $(F_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M-641. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	Filtered $(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	1.15E-06	-1.41E-04	1.73E-04	-1.35E-04	1.47E-04	-2.73E-05	2.91E-05
15.	3.44E-06	-4.22E-04	5.18E-04	-4.06E-04	4.39E-04	-2.73E-05	2.91E-05
30.	6.88E-06	-8.44E-04	1.04E-03	-8.12E-04	8.79E-04	-2.73E-05	2.91E-05
45.	1.03E-05	-1.27E-03	1.55E-03	-1.22E-03	1.32E-03	-2.73E-05	2.91E-05
65.	1.49E-05	-1.83E-03	2.24E-03	-1.76E-03	1.90E-03	-2.73E-05	2.91E-05

Table M-642. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	Filtered $(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	1.15E-06	-1.41E-04	1.73E-04	-1.35E-04	1.47E-04	-2.73E-05	2.91E-05
15.	3.44E-06	-4.22E-04	5.18E-04	-4.06E-04	4.39E-04	-2.73E-05	2.91E-05
30.	6.88E-06	-8.44E-04	1.04E-03	-8.12E-04	8.79E-04	-2.73E-05	2.91E-05
45.	1.03E-05	-1.27E-03	1.55E-03	-1.22E-03	1.32E-03	-2.73E-05	2.91E-05
65.	1.49E-05	-1.83E-03	2.24E-03	-1.76E-03	1.90E-03	-2.73E-05	2.91E-05

# TASK 1/ROLL MOTION/MODEL 5613

Table M-643. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
	(kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-644. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
	(kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.179	-0.377	1.89E-02	-0.374	1.66E-02	-3.89E-02	3.91E-02
15.	-1.61	-3.39	0.171	-3.36	0.151	-0.117	0.117
30.	-6.44	-13.6	0.683	-13.4	0.603	-0.234	0.235
45.	-14.5	-30.5	1.54	-30.3	1.35	-0.350	0.352
65.	-30.2	-63.7	3.20	-63.1	2.83	-0.506	0.509



Table M-645. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.179	-0.349	-8.54E-03	-0.346	-1.13E-02	-3.35E-02	3.35E-02
15.	-1.61	-3.14	-7.69E-02	-3.12	-0.102	-0.100	0.101
30.	-6.44	-12.6	-0.308	-12.5	-0.409	-0.201	0.201
45.	-14.5	-28.3	-0.693	-28.0	-0.921	-0.301	0.302
65.	-30.2	-59.0	-1.45	-58.5	-1.92	-0.435	0.436

Table M-646. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.384	-2.75	4.30	-1.81	3.19	-0.438	0.561
15.	3.63	-18.2	31.7	-15.3	30.5	-1.26	1.79
30.	11.0	-62.7	139.	-45.0	120.	-1.87	3.63
45.	22.1	-109.	327.	-86.7	266.	-2.42	5.43
65.	63.3	-439.	779.	-302.	589.	-5.62	8.09

# TASK 1/ROLL MOTION/MODEL 5613

Table M-647. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-648. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

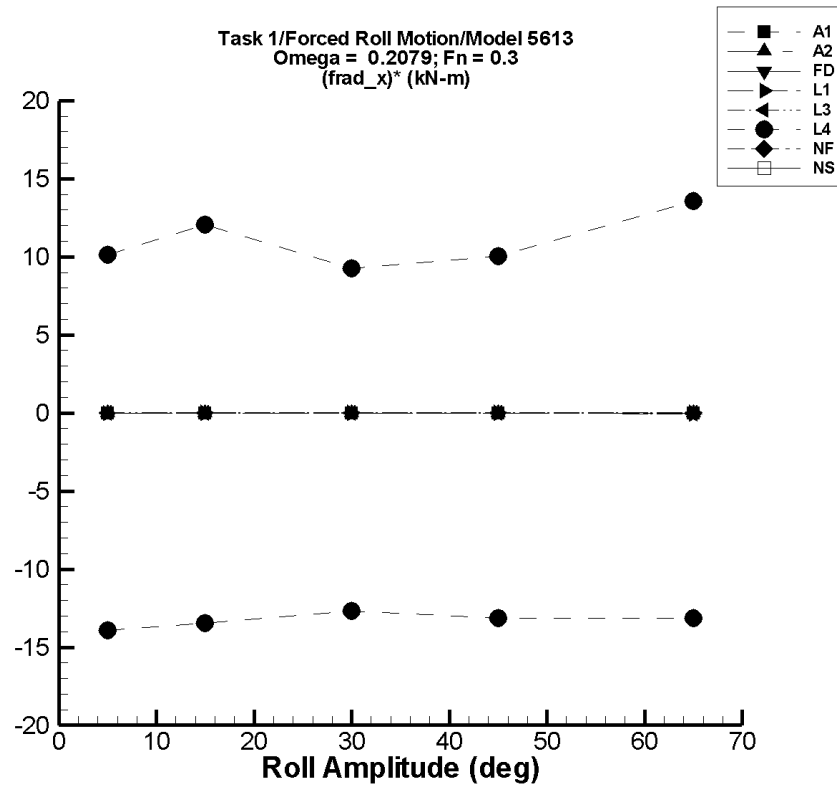


Figure M-82. Minimum and Maximum of  $(F_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-649. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	-1.54E-07	-7.38E-04	7.40E-04	-7.37E-04	7.39E-04	-1.47E-04	1.48E-04
15.	-4.63E-07	-2.21E-03	2.22E-03	-2.21E-03	2.22E-03	-1.47E-04	1.48E-04
30.	-9.26E-07	-4.42E-03	4.44E-03	-4.42E-03	4.43E-03	-1.47E-04	1.48E-04
45.	-1.39E-06	-6.64E-03	6.66E-03	-6.63E-03	6.65E-03	-1.47E-04	1.48E-04
65.	-2.01E-06	-9.59E-03	9.62E-03	-9.58E-03	9.61E-03	-1.47E-04	1.48E-04

Table M-650. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	-1.54E-07	-7.38E-04	7.40E-04	-7.37E-04	7.39E-04	-1.47E-04	1.48E-04
15.	-4.63E-07	-2.21E-03	2.22E-03	-2.21E-03	2.22E-03	-1.47E-04	1.48E-04
30.	-9.26E-07	-4.42E-03	4.44E-03	-4.42E-03	4.43E-03	-1.47E-04	1.48E-04
45.	-1.39E-06	-6.64E-03	6.66E-03	-6.63E-03	6.65E-03	-1.47E-04	1.48E-04
65.	-2.01E-06	-9.59E-03	9.62E-03	-9.58E-03	9.61E-03	-1.47E-04	1.48E-04

# TASK 1/ROLL MOTION/MODEL 5613

Table M-651. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-652. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.6	-41.7	-41.6	-41.6	-41.6	-3.62E-03	3.88E-03
15.	-41.5	-41.7	-41.3	-41.7	-41.4	-9.20E-03	9.14E-03
30.	-41.1	-41.7	-40.5	-41.7	-40.6	-1.82E-02	1.83E-02
45.	-40.4	-41.7	-39.2	-41.7	-39.2	-2.73E-02	2.74E-02
65.	-39.1	-41.7	-36.5	-41.7	-36.6	-3.95E-02	3.96E-02

Table M-653. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.7	-41.7	-41.6	-41.7	-41.6	-1.57E-02	1.43E-02
15.	-41.5	-41.7	-41.3	-41.7	-41.3	-1.22E-02	1.28E-02
30.	-41.1	-41.7	-40.5	-41.7	-40.5	-1.98E-02	2.00E-02
45.	-40.5	-41.8	-39.2	-41.8	-39.2	-2.84E-02	2.85E-02
65.	-39.2	-41.8	-36.5	-41.8	-36.6	-4.02E-02	4.03E-02

Table M-654. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	2.88	-265.	116.	-66.7	53.5	-13.9	10.1
15.	146.	-224.	417.	-56.2	327.	-13.5	12.1
30.	334.	-273.	764.	-46.7	611.	-12.7	9.23
45.	530.	-359.	1.08E+03	-61.9	982.	-13.2	10.0
65.	860.	-384.	1.81E+03	5.73	1.74E+03	-13.1	13.6

# TASK 1/ROLL MOTION/MODEL 5613

Table M-655. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-656. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

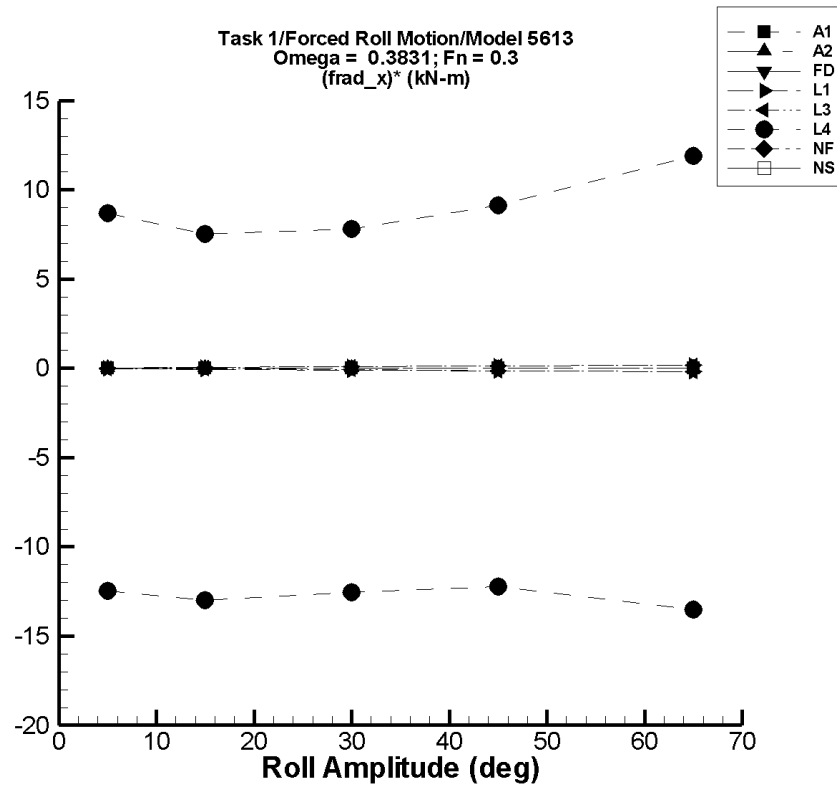


Figure M-83. Minimum and Maximum of  $(F_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.



Table M-657. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered $(F_x^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
5.	6.96E-07	-1.46E-03	1.47E-03	-1.45E-03	1.47E-03	-2.91E-04	2.95E-04
15.	2.09E-06	-4.38E-03	4.41E-03	-4.36E-03	4.42E-03	-2.91E-04	2.95E-04
30.	4.18E-06	-8.75E-03	8.83E-03	-8.72E-03	8.84E-03	-2.91E-04	2.95E-04
45.	6.26E-06	-1.31E-02	1.32E-02	-1.31E-02	1.33E-02	-2.91E-04	2.95E-04
65.	9.05E-06	-1.90E-02	1.91E-02	-1.89E-02	1.92E-02	-2.91E-04	2.95E-04

Table M-658. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered $(F_x^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
5.	6.96E-07	-1.46E-03	1.47E-03	-1.45E-03	1.47E-03	-2.91E-04	2.95E-04
15.	2.09E-06	-4.38E-03	4.41E-03	-4.36E-03	4.42E-03	-2.91E-04	2.95E-04
30.	4.18E-06	-8.75E-03	8.83E-03	-8.72E-03	8.84E-03	-2.91E-04	2.95E-04
45.	6.26E-06	-1.31E-02	1.32E-02	-1.31E-02	1.33E-02	-2.91E-04	2.95E-04
65.	-6.58E-06	-1.91E-02	1.95E-02	-1.91E-02	1.90E-02	-2.93E-04	2.92E-04

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Table M-659. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-660. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.6	-41.7	-41.5	-41.7	-41.5	-1.53E-02	1.53E-02
15.	-41.0	-41.7	-40.3	-41.7	-40.3	-4.44E-02	4.45E-02
30.	-39.1	-41.8	-36.4	-41.8	-36.5	-8.85E-02	8.87E-02
45.	-36.0	-42.0	-29.9	-41.9	-30.0	-0.133	0.133
65.	-29.8	-42.3	-17.2	-42.2	-17.3	-0.192	0.192

Table M-661. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.6	-41.7	-41.5	-41.7	-41.5	-1.70E-02	2.23E-02
15.	-41.0	-41.7	-40.4	-41.7	-40.4	-4.29E-02	4.45E-02
30.	-39.1	-41.7	-36.6	-41.7	-36.6	-8.42E-02	8.49E-02
45.	-36.0	-41.7	-30.3	-41.6	-30.3	-0.126	0.126
65.	-29.8	-41.7	-17.9	-41.6	-18.0	-0.182	0.182

Table M-662. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-4.91	-96.1	41.0	-67.2	38.6	-12.5	8.70
15.	129.	-104.	251.	-65.7	242.	-13.0	7.53
30.	333.	-58.6	574.	-43.6	567.	-12.6	7.82
45.	569.	-1.94	988.	18.5	980.	-12.2	9.14
65.	997.	78.0	1.79E+03	118.	1.77E+03	-13.5	11.9

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Table M-663. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-664. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

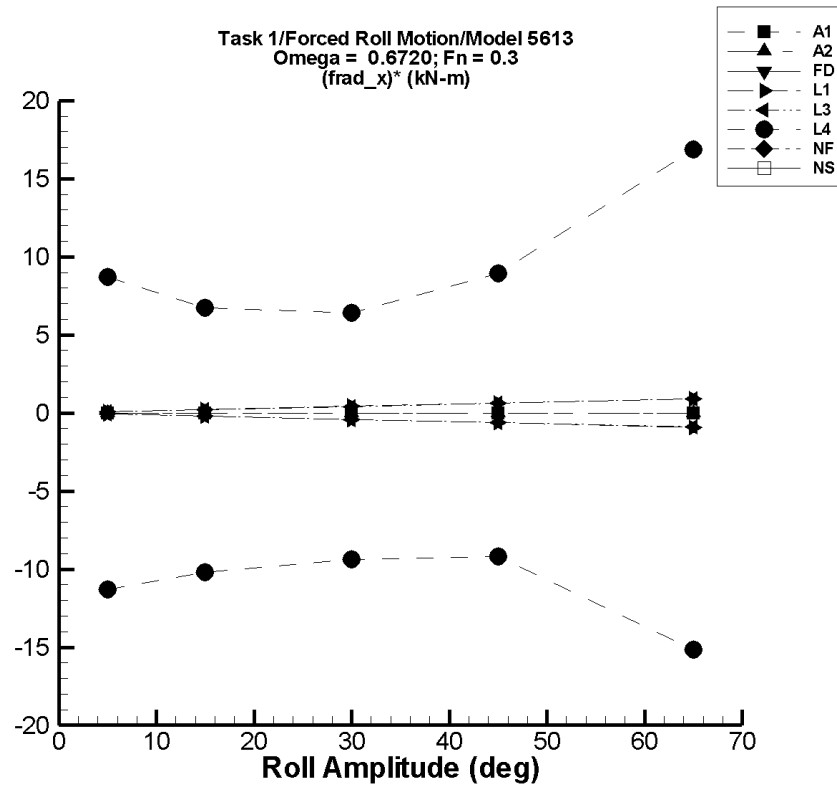


Figure M-84. Minimum and Maximum of  $(F_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-665. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	-2.14E-07	-2.56E-03	2.50E-03	-2.38E-03	2.39E-03	-4.76E-04	4.78E-04
15.	-6.42E-07	-7.68E-03	7.49E-03	-7.13E-03	7.17E-03	-4.76E-04	4.78E-04
30.	-1.28E-06	-1.54E-02	1.50E-02	-1.43E-02	1.43E-02	-4.76E-04	4.78E-04
45.	-1.93E-06	-2.30E-02	2.25E-02	-2.14E-02	2.15E-02	-4.76E-04	4.78E-04
65.	-2.78E-06	-3.33E-02	3.25E-02	-3.09E-02	3.11E-02	-4.76E-04	4.78E-04

Table M-666. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_x^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_x^{\text{rad}})^*$ Max. (kN/°)
5.	-2.14E-07	-2.56E-03	2.50E-03	-2.38E-03	2.39E-03	-4.76E-04	4.78E-04
15.	-6.42E-07	-7.68E-03	7.49E-03	-7.13E-03	7.17E-03	-4.76E-04	4.78E-04
30.	-1.28E-06	-1.54E-02	1.50E-02	-1.43E-02	1.43E-02	-4.76E-04	4.78E-04
45.	-1.93E-06	-2.30E-02	2.25E-02	-2.14E-02	2.15E-02	-4.76E-04	4.78E-04
65.	-2.78E-06	-3.33E-02	3.25E-02	-3.09E-02	3.11E-02	-4.76E-04	4.78E-04

# TASK 1/ROLL MOTION/MODEL 5613

Table M-667. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-668. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.4	-41.8	-41.0	-41.8	-41.0	-7.05E-02	7.13E-02
15.	-39.4	-42.7	-36.2	-42.6	-36.3	-0.211	0.212
30.	-32.8	-45.7	-19.9	-45.5	-20.1	-0.423	0.423
45.	-21.7	-50.8	7.28	-50.2	6.84	-0.634	0.634
65.	-5.19E-02	-60.6	60.5	-59.6	59.5	-0.916	0.916

Table M-669. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.4	-41.8	-41.0	-41.8	-41.0	-7.44E-02	7.40E-02
15.	-39.4	-42.5	-36.3	-42.5	-36.3	-0.205	0.205
30.	-32.8	-45.2	-20.4	-45.0	-20.4	-0.407	0.413
45.	-21.7	-49.6	6.17	-49.1	6.19	-0.609	0.620
65.	-4.08E-02	-58.1	58.1	-57.2	58.2	-0.879	0.896

Table M-670. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.27	-94.7	42.5	-61.8	38.3	-11.3	8.72
15.	121.	-53.4	231.	-31.3	222.	-10.2	6.72
30.	311.	6.61	525.	29.7	503.	-9.36	6.41
45.	530.	94.8	1.00E+03	115.	932.	-9.21	8.94
65.	952.	-94.0	2.10E+03	-32.5	2.05E+03	-15.2	16.9



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Table M-671. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-672. Minimum and Maximum of  $F_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_x^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_x^{\text{rad}}$		Filtered $F_x^{\text{rad}}$		Filtered $(F_x^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

# TASK 1/ROLL MOTION/MODEL 5613

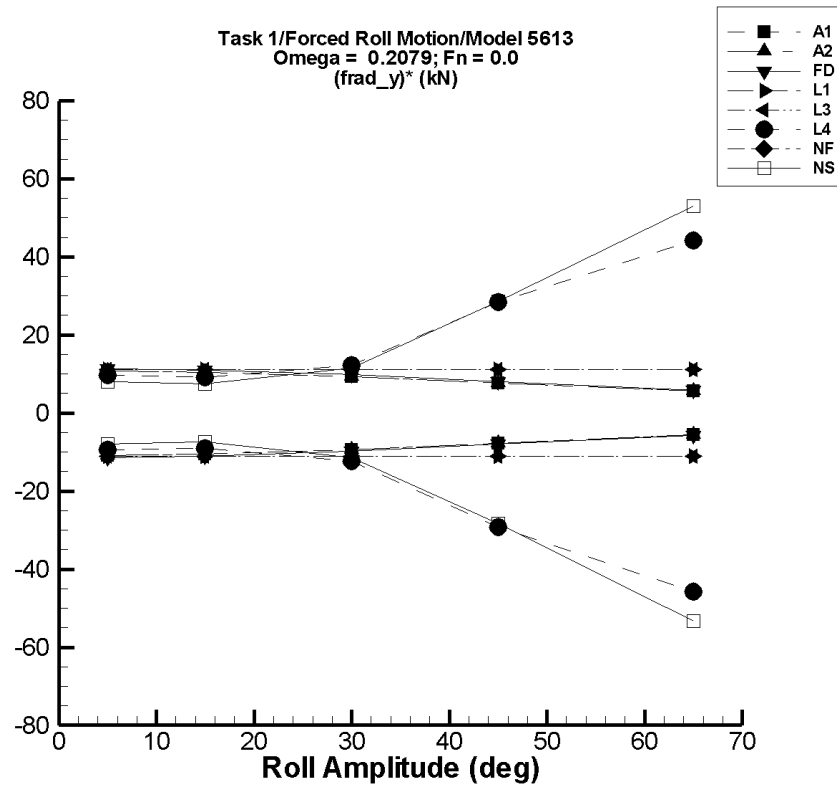


Figure M-85. Minimum and Maximum of  $(F_y^{rad})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-673. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.45E-02	-62.4	62.2	-54.1	54.0	-10.8	10.8
15.	0.130	-182.	181.	-157.	157.	-10.5	10.5
30.	4.32E-02	-330.	328.	-282.	282.	-9.41	9.39
45.	-0.452	-413.	408.	-346.	346.	-7.68	7.69
65.	-1.98	-477.	459.	-364.	363.	-5.57	5.62

Table M-674. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.45E-02	-62.4	62.2	-54.1	54.0	-10.8	10.8
15.	0.130	-182.	181.	-157.	157.	-10.5	10.5
30.	4.32E-02	-330.	328.	-282.	282.	-9.41	9.39
45.	-0.452	-413.	408.	-346.	346.	-7.68	7.69
65.	-1.98	-477.	459.	-364.	363.	-5.57	5.62

# TASK 1/ROLL MOTION/MODEL 5613

Table M-675. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.63E-03	-56.8	56.8	-56.8	56.8	-11.4	11.4
15.	-4.39E-02	-165.	165.	-165.	165.	-11.0	11.0
30.	-0.345	-296.	296.	-296.	296.	-9.86	9.88
45.	-1.13	-363.	363.	-363.	363.	-8.04	8.09
65.	-3.18	-372.	372.	-371.	371.	-5.66	5.76

Table M-676. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.89E-05	-55.5	55.5	-55.5	55.5	-11.1	11.1
15.	-8.81E-05	-166.	166.	-166.	166.	-11.1	11.1
30.	-9.26E-04	-333.	333.	-333.	333.	-11.1	11.1
45.	-2.35E-03	-499.	499.	-499.	499.	-11.1	11.1
65.	-5.37E-03	-721.	721.	-721.	721.	-11.1	11.1

TASK 1/ROLL MOTION/MODEL 5613

Table M-677. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.01E-05	-55.5	55.5	-55.5	55.5	-11.1	11.1
15.	-6.63E-05	-166.	166.	-166.	166.	-11.1	11.1
30.	-9.40E-04	-333.	333.	-333.	333.	-11.1	11.1
45.	-2.34E-03	-499.	499.	-499.	499.	-11.1	11.1
65.	-5.45E-03	-721.	721.	-721.	721.	-11.1	11.1

Table M-678. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-9.95E-02	-48.1	47.9	-47.6	47.8	-9.51	9.58
15.	-0.299	-140.	138.	-137.	135.	-9.13	9.05
30.	2.69	-371.	370.	-368.	367.	-12.4	12.2
45.	21.1	-1.31E+03	1.31E+03	-1.29E+03	1.30E+03	-29.2	28.3
65.	54.7	-2.93E+03	2.93E+03	-2.92E+03	2.92E+03	-45.8	44.1

# TASK 1/ROLL MOTION/MODEL 5613

Table M-679. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-680. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.05E-03	-40.2	40.2	-39.9	39.9	-7.97	7.97
15.	2.40E-02	-118.	118.	-111.	111.	-7.40	7.42
30.	0.244	-360.	362.	-341.	344.	-11.4	11.4
45.	1.05	-1.30E+03	1.31E+03	-1.28E+03	1.29E+03	-28.4	28.6
65.	0.950	-3.58E+03	3.54E+03	-3.46E+03	3.44E+03	-53.3	52.9

# TASK 1/ROLL MOTION/MODEL 5613

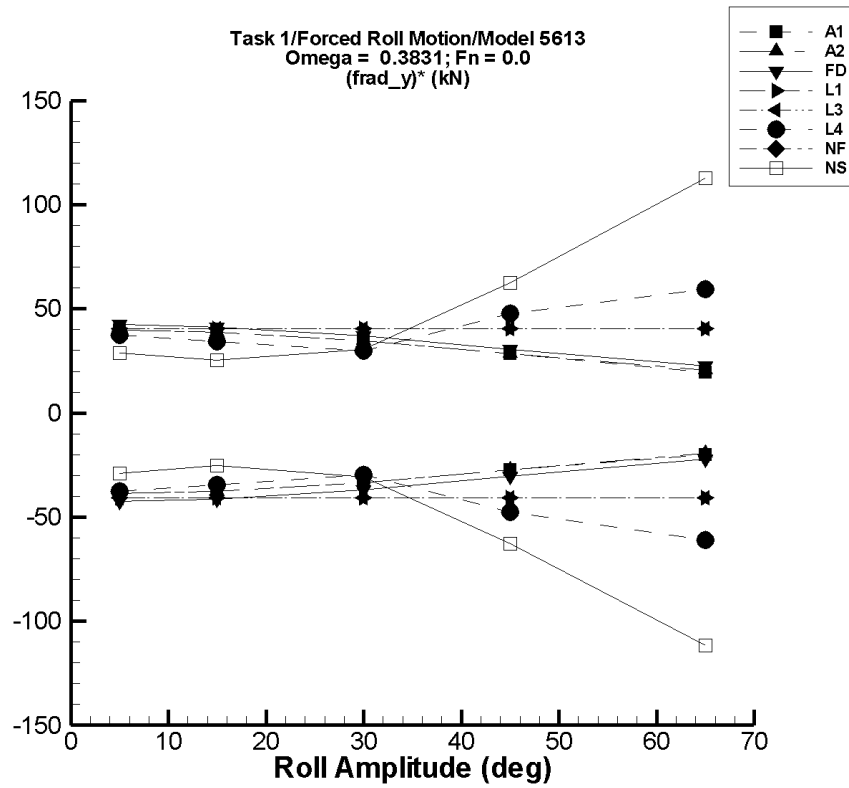


Figure M-86. Minimum and Maximum of  $(F_y^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

TASK 1/ROLL MOTION/MODEL 5613

Table M-681. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.218	-203.	201.	-193.	200.	-38.7	39.9
15.	0.544	-592.	585.	-562.	582.	-37.5	38.7
30.	0.373	-1.07E+03	1.05E+03	-1.01E+03	1.04E+03	-33.6	34.8
45.	-1.14	-1.32E+03	1.28E+03	-1.24E+03	1.28E+03	-27.5	28.5
65.	-5.97	-1.33E+03	1.39E+03	-1.31E+03	1.25E+03	-20.1	19.3

Table M-682. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.218	-203.	201.	-193.	200.	-38.7	39.9
15.	0.544	-592.	585.	-562.	582.	-37.5	38.7
30.	0.373	-1.07E+03	1.05E+03	-1.01E+03	1.04E+03	-33.6	34.8
45.	-1.14	-1.32E+03	1.28E+03	-1.24E+03	1.28E+03	-27.5	28.5
65.	-23.9	-1.43E+03	1.39E+03	-1.29E+03	1.31E+03	-19.4	20.5



Table M-683. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.50E-03	-214.	214.	-213.	213.	-42.6	42.6
15.	-0.146	-622.	622.	-620.	620.	-41.3	41.3
30.	-1.14	-1.12E+03	1.12E+03	-1.11E+03	1.11E+03	-37.1	37.1
45.	-3.72	-1.38E+03	1.38E+03	-1.37E+03	1.37E+03	-30.4	30.6
65.	-10.4	-1.46E+03	1.46E+03	-1.46E+03	1.45E+03	-22.3	22.5

Table M-684. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-6.48E-03	-203.	203.	-203.	203.	-40.6	40.6
15.	-2.03E-02	-610.	609.	-609.	608.	-40.6	40.6
30.	-4.29E-02	-1.22E+03	1.22E+03	-1.22E+03	1.22E+03	-40.6	40.6
45.	-6.74E-02	-1.83E+03	1.83E+03	-1.83E+03	1.83E+03	-40.6	40.6
65.	-0.105	-2.64E+03	2.64E+03	-2.64E+03	2.64E+03	-40.6	40.6

Table M-685. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-6.21E-03	-203.	203.	-203.	203.	-40.6	40.6
15.	-1.93E-02	-610.	609.	-609.	608.	-40.6	40.6
30.	-4.10E-02	-1.22E+03	1.22E+03	-1.22E+03	1.22E+03	-40.6	40.6
45.	-6.47E-02	-1.83E+03	1.83E+03	-1.83E+03	1.83E+03	-40.6	40.6
65.	-0.101	-2.64E+03	2.64E+03	-2.64E+03	2.64E+03	-40.6	40.6

Table M-686. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.644	-188.	187.	-187.	187.	-37.6	37.2
15.	4.24	-525.	526.	-514.	520.	-34.6	34.4
30.	10.6	-909.	907.	-882.	904.	-29.7	29.8
45.	25.6	-2.16E+03	2.17E+03	-2.12E+03	2.17E+03	-47.6	47.6
65.	66.6	-5.35E+03	5.07E+03	-3.89E+03	3.92E+03	-60.9	59.3

# TASK 1/ROLL MOTION/MODEL 5613

Table M-687. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-688. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-4.22E-03	-146.	146.	-145.	144.	-29.0	28.9
15.	-4.62E-02	-403.	403.	-381.	381.	-25.4	25.4
30.	-0.346	-1.06E+03	1.07E+03	-920.	918.	-30.7	30.6
45.	-1.66	-2.85E+03	2.84E+03	-2.82E+03	2.81E+03	-62.7	62.4
65.	-0.196	-8.35E+03	7.91E+03	-7.25E+03	7.33E+03	-112.	113.

# TASK 1/ROLL MOTION/MODEL 5613

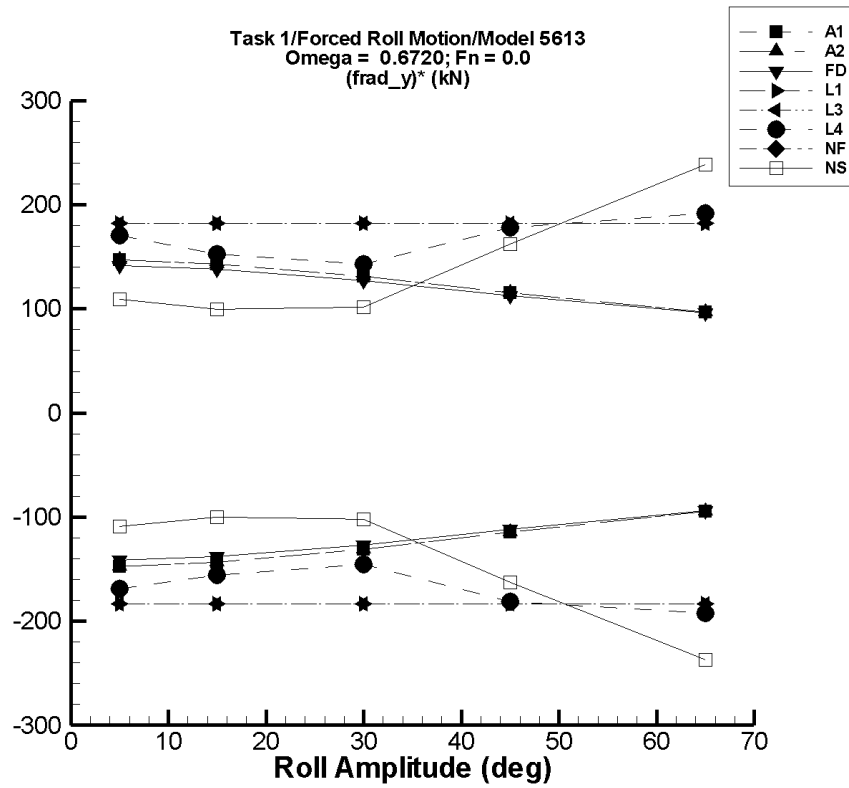


Figure M-87. Minimum and Maximum of  $(F_y^{rad})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

TASK 1/ROLL MOTION/MODEL 5613

Table M-689. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
(°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.124	-746.	743.	-737.	734.	-147.	147.
15.	-1.24	-2.18E+03	2.17E+03	-2.15E+03	2.14E+03	-143.	143.
30.	-8.22	-3.99E+03	3.97E+03	-3.95E+03	3.93E+03	-131.	131.
45.	-25.9	-5.24E+03	5.24E+03	-5.18E+03	5.17E+03	-114.	116.
65.	-71.7	-6.40E+03	6.40E+03	-6.22E+03	6.23E+03	-94.7	96.9

Table M-690. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
(°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.124	-746.	743.	-737.	734.	-147.	147.
15.	-1.24	-2.18E+03	2.17E+03	-2.15E+03	2.14E+03	-143.	143.
30.	-8.22	-3.99E+03	3.97E+03	-3.95E+03	3.93E+03	-131.	131.
45.	-25.9	-5.24E+03	5.24E+03	-5.18E+03	5.17E+03	-114.	116.
65.	-71.7	-6.40E+03	6.40E+03	-6.22E+03	6.23E+03	-94.7	96.9

Table M-691. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.66E-02	-717.	716.	-708.	708.	-142.	142.
15.	-1.01	-2.10E+03	2.10E+03	-2.07E+03	2.07E+03	-138.	138.
30.	-7.95	-3.85E+03	3.85E+03	-3.82E+03	3.81E+03	-127.	127.
45.	-25.8	-5.12E+03	5.12E+03	-5.06E+03	5.06E+03	-112.	113.
65.	-71.8	-6.36E+03	6.36E+03	-6.19E+03	6.19E+03	-94.1	96.3

Table M-692. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.94E-02	-915.	915.	-915.	911.	-183.	182.
15.	-6.12E-02	-2.74E+03	2.74E+03	-2.75E+03	2.73E+03	-183.	182.
30.	-0.130	-5.49E+03	5.49E+03	-5.49E+03	5.47E+03	-183.	182.
45.	-0.208	-8.23E+03	8.23E+03	-8.24E+03	8.20E+03	-183.	182.
65.	-0.323	-1.19E+04	1.19E+04	-1.19E+04	1.18E+04	-183.	182.

Table M-693. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_y^{\text{rad}}</math></b>		<b>Filtered <math>F_y^{\text{rad}}</math></b>		<b>Filtered <math>(F_y^{\text{rad}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	-1.84E-02	-915.	915.	-917.	911.	-183.	182.
15.	-5.74E-02	-2.74E+03	2.74E+03	-2.75E+03	2.73E+03	-183.	182.
30.	-0.123	-5.49E+03	5.49E+03	-5.50E+03	5.47E+03	-183.	182.
45.	-0.198	-8.23E+03	8.23E+03	-8.25E+03	8.20E+03	-183.	182.
65.	-0.306	-1.19E+04	1.19E+04	-1.19E+04	1.18E+04	-183.	182.

Table M-694. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_y^{\text{rad}}</math></b>		<b>Filtered <math>F_y^{\text{rad}}</math></b>		<b>Filtered <math>(F_y^{\text{rad}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	5.61	-861.	861.	-838.	857.	-169.	170.
15.	26.2	-2.35E+03	2.35E+03	-2.31E+03	2.32E+03	-156.	153.
30.	65.9	-4.40E+03	4.41E+03	-4.31E+03	4.35E+03	-146.	143.
45.	127.	-8.22E+03	8.23E+03	-8.02E+03	8.14E+03	-181.	178.
65.	217.	-1.27E+04	1.28E+04	-1.23E+04	1.27E+04	-192.	192.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-695. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-696. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.256	-552.	552.	-546.	545.	-109.	109.
15.	0.595	-1.62E+03	1.62E+03	-1.50E+03	1.50E+03	-100.	99.6
30.	2.79E-02	-3.72E+03	3.71E+03	-3.06E+03	3.05E+03	-102.	102.
45.	-4.33	-7.38E+03	7.37E+03	-7.31E+03	7.30E+03	-162.	162.
65.	-5.72	-1.63E+04	1.57E+04	-1.54E+04	1.55E+04	-237.	239.



# TASK 1/ROLL MOTION/MODEL 5613

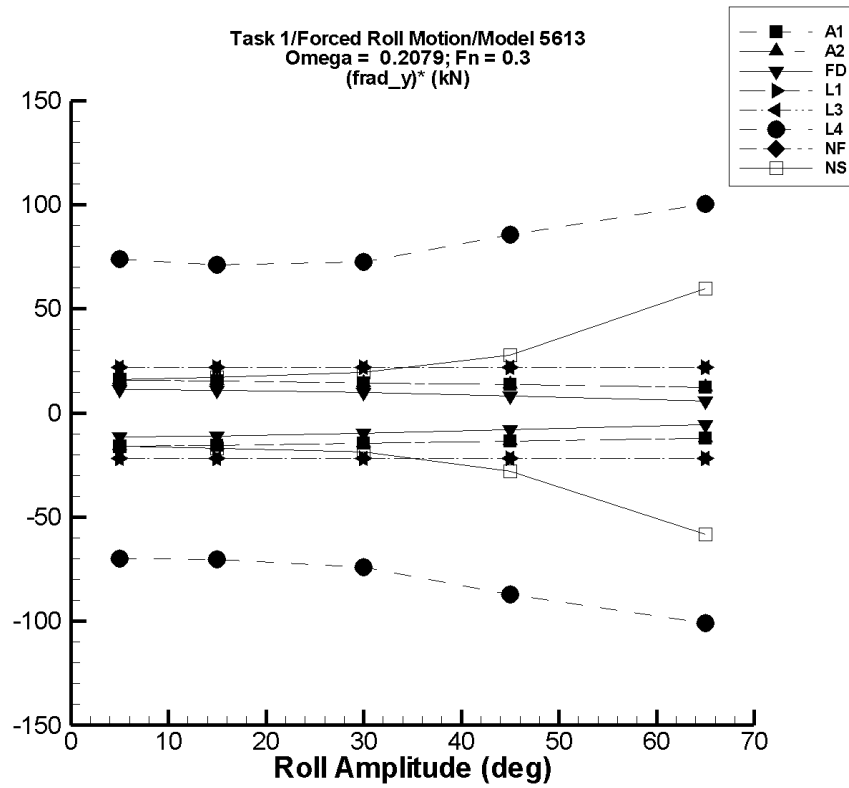


Figure M-88. Minimum and Maximum of  $(F_y^{rad})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-697. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.35E-02	-82.8	82.4	-79.0	79.1	-15.8	15.8
15.	6.73E-02	-244.	244.	-232.	232.	-15.5	15.5
30.	-0.282	-463.	463.	-434.	433.	-14.5	14.5
45.	-1.41	-630.	636.	-611.	609.	-13.5	13.6
65.	-4.59	-802.	805.	-796.	799.	-12.2	12.4

Table M-698. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.35E-02	-82.8	82.4	-79.0	79.1	-15.8	15.8
15.	6.73E-02	-244.	244.	-232.	232.	-15.5	15.5
30.	-0.282	-463.	463.	-434.	433.	-14.5	14.5
45.	-1.41	-630.	636.	-611.	609.	-13.5	13.6
65.	-4.59	-802.	805.	-796.	799.	-12.2	12.4

TASK 1/ROLL MOTION/MODEL 5613

Table M-699. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.63E-03	-56.8	56.8	-56.8	56.8	-11.4	11.4
15.	-4.39E-02	-165.	165.	-165.	165.	-11.0	11.0
30.	-0.345	-296.	296.	-296.	296.	-9.86	9.88
45.	-1.13	-363.	363.	-363.	363.	-8.04	8.09
65.	-3.18	-372.	372.	-371.	371.	-5.66	5.76

Table M-700. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	7.32E-02	-109.	109.	-109.	109.	-21.8	21.8
15.	7.33E-02	-327.	327.	-327.	327.	-21.8	21.8
30.	7.24E-02	-653.	654.	-653.	653.	-21.8	21.8
45.	7.01E-02	-980.	980.	-980.	980.	-21.8	21.8
65.	6.70E-02	-1.42E+03	1.42E+03	-1.42E+03	1.42E+03	-21.8	21.8

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Table M-701. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	7.26E-02	-109.	109.	-109.	109.	-21.8	21.8
15.	7.75E-02	-327.	327.	-327.	327.	-21.8	21.8
30.	8.40E-02	-653.	654.	-653.	653.	-21.8	21.8
45.	8.91E-02	-980.	980.	-980.	980.	-21.8	21.8
65.	9.58E-02	-1.42E+03	1.42E+03	-1.42E+03	1.42E+03	-21.8	21.8

Table M-702. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.44	-392.	418.	-353.	365.	-69.9	73.7
15.	12.9	-1.18E+03	1.27E+03	-1.04E+03	1.08E+03	-70.4	71.2
30.	27.0	-2.27E+03	2.49E+03	-2.19E+03	2.21E+03	-74.1	72.6
45.	37.7	-4.05E+03	4.00E+03	-3.88E+03	3.89E+03	-87.1	85.6
65.	17.7	-7.29E+03	7.17E+03	-6.55E+03	6.54E+03	-101.	100.

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Table M-703. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-704. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.91E-03	-81.7	81.7	-80.3	80.3	-16.1	16.1
15.	-4.29E-02	-272.	272.	-254.	258.	-16.9	17.2
30.	-5.63E-02	-650.	651.	-559.	588.	-18.6	19.6
45.	0.123	-1.30E+03	1.28E+03	-1.27E+03	1.25E+03	-28.1	27.9
65.	12.2	-4.53E+03	4.26E+03	-3.77E+03	3.90E+03	-58.2	59.8

# TASK 1/ROLL MOTION/MODEL 5613

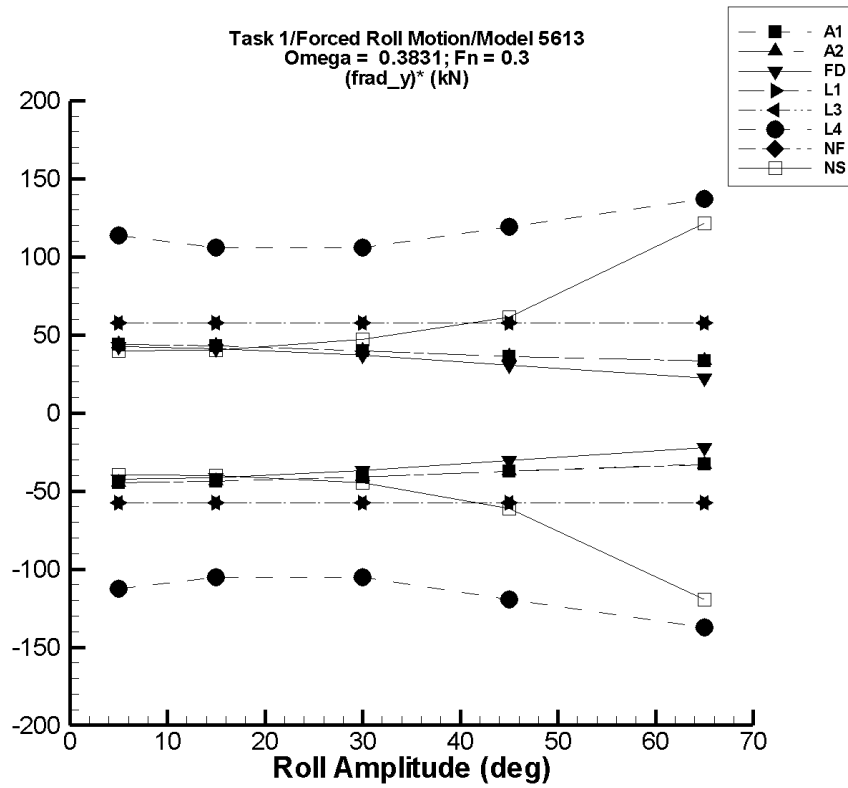


Figure M-89. Minimum and Maximum of  $(F_y^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M-705. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_y^{\text{rad}}</math></b>		<b>Filtered <math>F_y^{\text{rad}}</math></b>		<b>Filtered <math>(F_y^{\text{rad}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	0.229	-225.	219.	-224.	219.	-44.8	43.8
15.	0.522	-661.	643.	-658.	643.	-43.9	42.8
30.	-5.10E-02	-1.24E+03	1.21E+03	-1.23E+03	1.20E+03	-41.1	39.9
45.	-2.68	-1.69E+03	1.72E+03	-1.68E+03	1.62E+03	-37.4	36.1
65.	-10.6	-2.17E+03	2.23E+03	-2.15E+03	2.16E+03	-32.9	33.4

Table M-706. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ <b>Mean</b> (kN)	<b>Unfiltered <math>F_y^{\text{rad}}</math></b>		<b>Filtered <math>F_y^{\text{rad}}</math></b>		<b>Filtered <math>(F_y^{\text{rad}})^*</math></b>	
		<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN)	<b>Max.</b> (kN)	<b>Min.</b> (kN/°)	<b>Max.</b> (kN/°)
5.	0.229	-225.	219.	-224.	219.	-44.8	43.8
15.	0.522	-661.	643.	-658.	643.	-43.9	42.8
30.	-5.10E-02	-1.24E+03	1.21E+03	-1.23E+03	1.20E+03	-41.1	39.9
45.	-2.68	-1.69E+03	1.72E+03	-1.68E+03	1.62E+03	-37.4	36.1
65.	-26.9	-2.26E+03	2.15E+03	-2.19E+03	2.13E+03	-33.3	33.2

TASK 1/ROLL MOTION/MODEL 5613

Table M-707. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.50E-03	-214.	214.	-213.	213.	-42.6	42.6
15.	-0.146	-622.	622.	-620.	620.	-41.3	41.3
30.	-1.14	-1.12E+03	1.12E+03	-1.11E+03	1.11E+03	-37.1	37.1
45.	-3.72	-1.38E+03	1.38E+03	-1.37E+03	1.37E+03	-30.4	30.6
65.	-10.4	-1.46E+03	1.46E+03	-1.46E+03	1.45E+03	-22.3	22.5

Table M-708. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.73E-02	-288.	288.	-287.	288.	-57.5	57.5
15.	6.73E-02	-864.	864.	-863.	863.	-57.5	57.5
30.	6.36E-02	-1.73E+03	1.73E+03	-1.73E+03	1.73E+03	-57.5	57.5
45.	5.70E-02	-2.59E+03	2.59E+03	-2.59E+03	2.59E+03	-57.5	57.5
65.	4.56E-02	-3.74E+03	3.74E+03	-3.74E+03	3.74E+03	-57.5	57.5



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Table M-709. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.83E-02	-288.	288.	-288.	288.	-57.5	57.5
15.	7.25E-02	-864.	864.	-863.	863.	-57.5	57.5
30.	7.55E-02	-1.73E+03	1.73E+03	-1.73E+03	1.73E+03	-57.5	57.5
45.	7.58E-02	-2.59E+03	2.59E+03	-2.59E+03	2.59E+03	-57.5	57.5
65.	7.41E-02	-3.74E+03	3.74E+03	-3.74E+03	3.74E+03	-57.5	57.5

Table M-710. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.09	-608.	599.	-568.	562.	-113.	113.
15.	-6.10	-1.62E+03	1.64E+03	-1.58E+03	1.58E+03	-105.	106.
30.	-8.73	-3.20E+03	3.19E+03	-3.17E+03	3.17E+03	-105.	106.
45.	4.14	-5.42E+03	5.43E+03	-5.37E+03	5.36E+03	-119.	119.
65.	-8.21	-1.15E+04	1.02E+04	-8.94E+03	8.90E+03	-137.	137.

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Table M-711. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-712. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.40E-02	-203.	203.	-198.	198.	-39.5	39.6
15.	-0.466	-666.	665.	-605.	603.	-40.3	40.3
30.	-2.29	-1.63E+03	1.63E+03	-1.34E+03	1.41E+03	-44.6	47.0
45.	-6.58	-2.88E+03	2.95E+03	-2.77E+03	2.75E+03	-61.4	61.3
65.	-7.07	-9.62E+03	9.12E+03	-7.76E+03	7.88E+03	-119.	121.

# TASK 1/ROLL MOTION/MODEL 5613

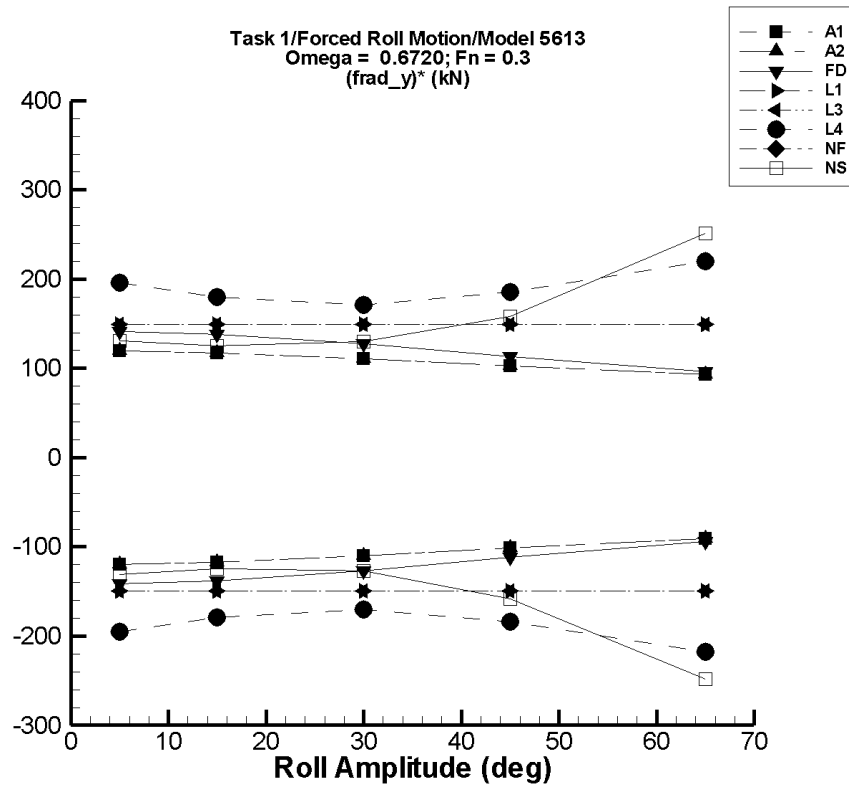


Figure M-90. Minimum and Maximum of  $(F_y^{rad})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-713. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
(°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.786	-604.	607.	-597.	600.	-120.	120.
15.	1.69	-1.78E+03	1.79E+03	-1.76E+03	1.76E+03	-117.	117.
30.	-1.01	-3.34E+03	3.37E+03	-3.30E+03	3.33E+03	-110.	111.
45.	-11.9	-4.63E+03	4.67E+03	-4.56E+03	4.60E+03	-101.	102.
65.	-43.8	-6.09E+03	6.15E+03	-5.94E+03	5.98E+03	-90.7	92.7

Table M-714. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
(°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.786	-604.	607.	-597.	600.	-120.	120.
15.	1.69	-1.78E+03	1.79E+03	-1.76E+03	1.76E+03	-117.	117.
30.	-1.01	-3.34E+03	3.37E+03	-3.30E+03	3.33E+03	-110.	111.
45.	-11.9	-4.63E+03	4.67E+03	-4.56E+03	4.60E+03	-101.	102.
65.	-43.8	-6.09E+03	6.15E+03	-5.94E+03	5.98E+03	-90.7	92.7

TASK 1/ROLL MOTION/MODEL 5613

Table M-715. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.66E-02	-717.	716.	-708.	708.	-142.	142.
15.	-1.01	-2.10E+03	2.10E+03	-2.07E+03	2.07E+03	-138.	138.
30.	-7.95	-3.85E+03	3.85E+03	-3.82E+03	3.81E+03	-127.	127.
45.	-25.8	-5.12E+03	5.12E+03	-5.06E+03	5.06E+03	-112.	113.
65.	-71.8	-6.36E+03	6.36E+03	-6.19E+03	6.19E+03	-94.1	96.3

Table M-716. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.69E-02	-751.	751.	-747.	748.	-150.	150.
15.	6.51E-02	-2.25E+03	2.25E+03	-2.24E+03	2.24E+03	-150.	150.
30.	5.54E-02	-4.50E+03	4.50E+03	-4.49E+03	4.49E+03	-150.	150.
45.	3.89E-02	-6.76E+03	6.76E+03	-6.73E+03	6.73E+03	-150.	150.
65.	7.72E-03	-9.76E+03	9.76E+03	-9.72E+03	9.72E+03	-150.	150.

Table M-717. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.42E-02	-751.	751.	-748.	748.	-150.	150.
15.	6.20E-02	-2.25E+03	2.25E+03	-2.24E+03	2.24E+03	-150.	150.
30.	5.18E-02	-4.50E+03	4.50E+03	-4.49E+03	4.49E+03	-150.	150.
45.	3.51E-02	-6.76E+03	6.76E+03	-6.73E+03	6.73E+03	-150.	150.
65.	2.03E-03	-9.76E+03	9.76E+03	-9.72E+03	9.72E+03	-150.	150.

Table M-718. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.88	-993.	995.	-978.	980.	-195.	196.
15.	-1.58	-2.75E+03	2.74E+03	-2.69E+03	2.69E+03	-179.	180.
30.	-6.50	-5.33E+03	5.32E+03	-5.13E+03	5.12E+03	-171.	171.
45.	-43.2	-8.54E+03	8.50E+03	-8.32E+03	8.32E+03	-184.	186.
65.	-129.	-1.46E+04	1.46E+04	-1.43E+04	1.42E+04	-218.	220.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-719. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-720. Minimum and Maximum of  $F_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_y^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_y^{\text{rad}}$		Filtered $F_y^{\text{rad}}$		Filtered $(F_y^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.229	-670.	670.	-653.	654.	-131.	131.
15.	0.243	-2.08E+03	2.09E+03	-1.87E+03	1.88E+03	-125.	125.
30.	-1.59	-4.75E+03	4.76E+03	-3.81E+03	3.90E+03	-127.	130.
45.	-7.99	-8.32E+03	8.59E+03	-7.14E+03	7.13E+03	-158.	159.
65.	-8.26	-1.85E+04	1.77E+04	-1.61E+04	1.63E+04	-248.	251.

# TASK 1/ROLL MOTION/MODEL 5613

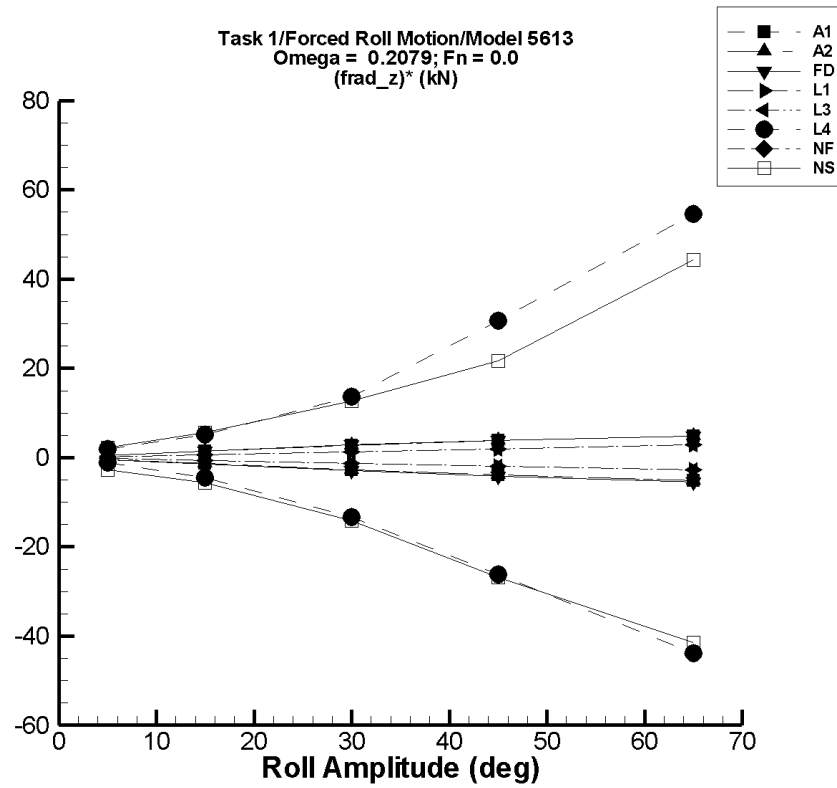


Figure M-91. Minimum and Maximum of  $(F_z^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.



TASK 1/ROLL MOTION/MODEL 5613

Table M-721. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
5.	2.30	-4.77E-04	5.27	-1.25E-02	4.73	-0.463	0.485
15.	20.5	-4.76E-03	46.9	-0.112	42.1	-1.38	1.44
30.	80.1	-1.95E-02	182.	-0.432	163.	-2.68	2.75
45.	172.	-4.42E-02	386.	-0.916	345.	-3.85	3.83
65.	330.	-9.27E-02	720.	-1.70	639.	-5.10	4.76

Table M-722. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	$(F_z^{\text{rad}})^*$ Max. (kN/°)
5.	2.30	-4.77E-04	5.27	-1.25E-02	4.73	-0.463	0.485
15.	20.5	-4.76E-03	46.9	-0.112	42.1	-1.38	1.44
30.	80.1	-1.95E-02	182.	-0.432	163.	-2.68	2.75
45.	172.	-4.42E-02	386.	-0.916	345.	-3.85	3.83
65.	330.	-9.27E-02	720.	-1.70	639.	-5.10	4.76

TASK 1/ROLL MOTION/MODEL 5613

Table M-723. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	Filtered $(F_z^{\text{rad}})^*$ Max. (kN/°)
5.	2.49	-3.42E-04	4.97	-8.38E-03	4.96	-0.499	0.495
15.	22.2	-3.08E-03	44.3	-7.42E-02	44.2	-1.49	1.47
30.	86.6	-1.23E-02	171.	-0.281	171.	-2.89	2.81
45.	186.	-2.77E-02	363.	-0.574	362.	-4.16	3.91
65.	356.	-5.78E-02	672.	-0.973	671.	-5.50	4.84

Table M-724. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN/°)	Filtered $(F_z^{\text{rad}})^*$ Max. (kN/°)
5.	1.08	-1.78E-03	2.15	-8.35E-05	2.15	-0.215	0.215
15.	9.68	-1.36E-02	19.4	1.73E-03	19.4	-0.645	0.646
30.	38.7	-5.19E-02	77.5	9.34E-03	77.5	-1.29	1.29
45.	87.1	-0.115	174.	2.25E-02	174.	-1.94	1.94
65.	182.	-0.238	364.	4.93E-02	364.	-2.80	2.80

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Table M-725. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.08	-1.76E-03	2.15	-6.39E-05	2.15	-0.215	0.215
15.	9.68	-1.35E-02	19.4	1.76E-03	19.4	-0.645	0.646
30.	38.7	-5.19E-02	77.5	9.22E-03	77.5	-1.29	1.29
45.	87.1	-0.115	174.	2.26E-02	174.	-1.94	1.94
65.	182.	-0.237	364.	4.96E-02	364.	-2.80	2.80

Table M-726. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.91	-5.96	11.2	-3.48	11.1	-1.08	1.85
15.	15.6	-57.1	112.	-53.1	91.7	-4.58	5.07
30.	60.1	-353.	563.	-340.	470.	-13.4	13.6
45.	164.	-1.03E+03	1.58E+03	-1.02E+03	1.54E+03	-26.3	30.6
65.	531.	-2.33E+03	4.18E+03	-2.32E+03	4.08E+03	-43.9	54.5

# TASK 1/ROLL MOTION/MODEL 5613

Table M-727. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-728. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.67	-24.1	29.2	-11.8	13.2	-2.70	2.30
15.	14.7	-134.	181.	-69.5	98.2	-5.62	5.57
30.	57.8	-415.	633.	-366.	436.	-14.1	12.6
45.	146.	-1.08E+03	1.75E+03	-1.06E+03	1.12E+03	-26.8	21.7
65.	363.	-2.40E+03	4.56E+03	-2.33E+03	3.24E+03	-41.5	44.3

# TASK 1/ROLL MOTION/MODEL 5613

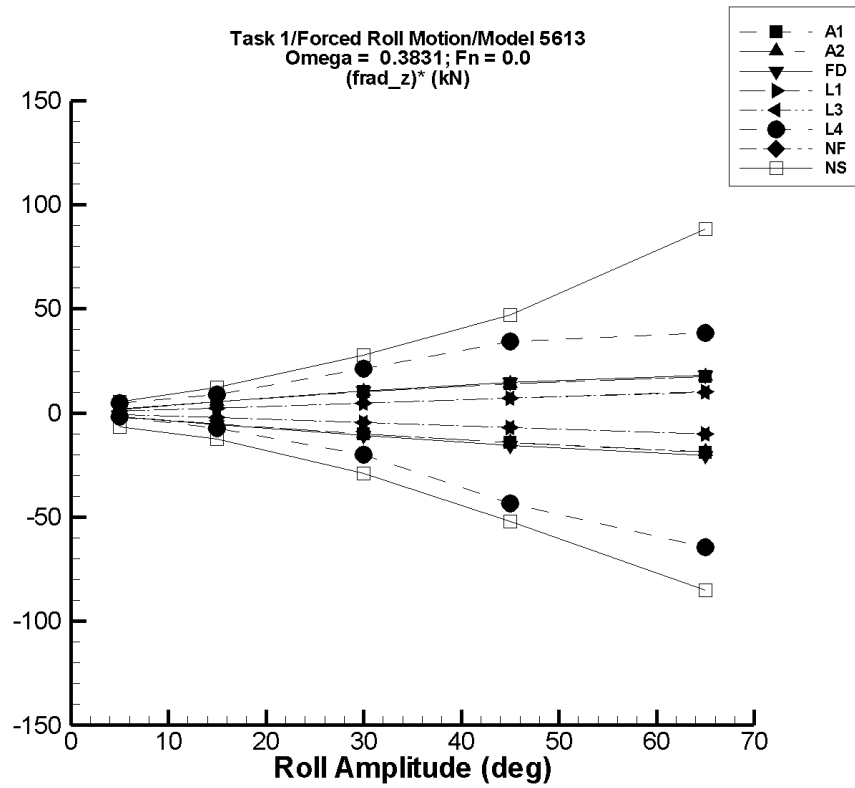


Figure M-92. Minimum and Maximum of  $(F_z^{rad})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-729. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered ( $F_z^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
5.	8.57	-1.09E-02	17.6	-2.39E-02	17.4	-1.72	1.77
15.	76.5	-0.102	157.	-0.211	155.	-5.11	5.25
30.	298.	-0.413	605.	-0.748	600.	-9.96	10.1
45.	642.	-0.932	1.28E+03	-1.32	1.27E+03	-14.3	14.0
65.	1.23E+03	-1.95	2.38E+03	-1.35	2.36E+03	-18.9	17.4

Table M-730. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered Min. (kN)	$F_z^{\text{rad}}$ Max. (kN)	Filtered ( $F_z^{\text{rad}})^*$ Min. (kN/°)	Max. (kN/°)
5.	8.57	-1.09E-02	17.6	-2.39E-02	17.4	-1.72	1.77
15.	76.5	-0.102	157.	-0.211	155.	-5.11	5.25
30.	298.	-0.413	605.	-0.748	600.	-9.96	10.1
45.	642.	-0.932	1.28E+03	-1.32	1.27E+03	-14.3	14.0
65.	1.23E+03	-1.49	2.39E+03	3.99	2.35E+03	-18.8	17.3

TASK 1/ROLL MOTION/MODEL 5613

Table M-731. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.33	-2.20E-02	18.7	6.39E-03	18.5	-1.87	1.84
15.	83.4	-0.198	166.	5.87E-02	165.	-5.55	5.46
30.	325.	-0.791	643.	0.252	639.	-10.8	10.5
45.	700.	-1.78	1.36E+03	0.627	1.36E+03	-15.5	14.6
65.	1.34E+03	-3.71	2.53E+03	1.55	2.51E+03	-20.6	18.0

Table M-732. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	3.84	-1.66E-02	7.69	4.24E-03	7.70	-0.766	0.772
15.	34.5	-0.138	69.2	4.78E-02	69.3	-2.30	2.32
30.	138.	-0.543	277.	0.200	277.	-4.60	4.63
45.	311.	-1.21	623.	0.456	623.	-6.89	6.95
65.	648.	-2.53	1.30E+03	0.959	1.30E+03	-9.96	10.0

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Table M-733. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	3.84	-2.10E-02	7.69	-4.71E-04	7.69	-0.767	0.772
15.	34.5	-0.182	69.2	4.66E-03	69.2	-2.30	2.31
30.	138.	-0.718	277.	2.69E-02	277.	-4.60	4.63
45.	311.	-1.61	623.	6.69E-02	623.	-6.90	6.94
65.	648.	-3.35	1.30E+03	0.147	1.30E+03	-9.97	10.0

Table M-734. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.91	-19.2	32.0	-2.35	29.7	-1.85	4.56
15.	52.7	-72.0	289.	-55.7	184.	-7.23	8.73
30.	163.	-471.	869.	-442.	800.	-20.1	21.3
45.	268.	-1.77E+03	2.03E+03	-1.68E+03	1.81E+03	-43.3	34.4
65.	350.	-4.01E+03	3.37E+03	-3.84E+03	2.86E+03	-64.4	38.6



# TASK 1/ROLL MOTION/MODEL 5613

Table M-735. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-736. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.57	-56.3	70.6	-27.1	32.4	-6.54	5.36
15.	47.8	-330.	434.	-138.	235.	-12.4	12.4
30.	174.	-920.	1.47E+03	-699.	1.00E+03	-29.1	27.7
45.	379.	-2.29E+03	3.95E+03	-1.96E+03	2.50E+03	-52.1	47.0
65.	809.	-5.01E+03	9.50E+03	-4.72E+03	6.56E+03	-85.1	88.5

# TASK 1/ROLL MOTION/MODEL 5613

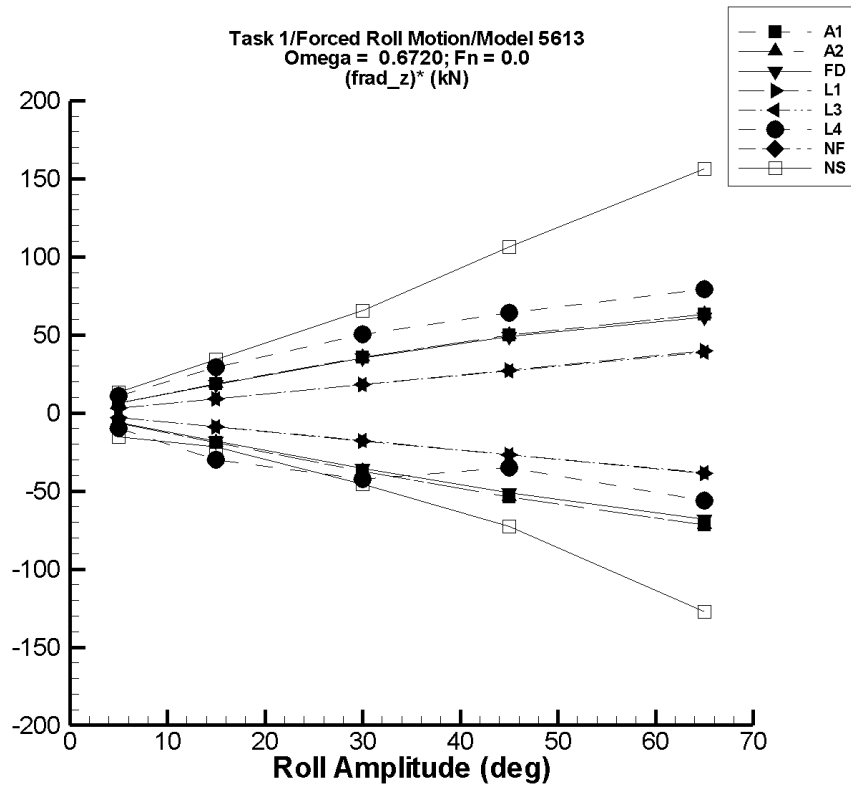


Figure M-93. Minimum and Maximum of  $(F_z^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

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Table M-737. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	30.1	-2.35	62.9	-2.04	61.4	-6.44	6.26
15.	269.	-21.2	560.	-18.4	547.	-19.2	18.5
30.	1.05E+03	-84.5	2.17E+03	-72.9	2.12E+03	-37.4	35.6
45.	2.26E+03	-190.	4.61E+03	-162.	4.51E+03	-53.8	50.0
65.	4.32E+03	-394.	8.59E+03	-331.	8.43E+03	-71.6	63.2

Table M-738. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	30.1	-2.35	62.9	-2.04	61.4	-6.44	6.26
15.	269.	-21.2	560.	-18.4	547.	-19.2	18.5
30.	1.05E+03	-84.5	2.17E+03	-72.9	2.12E+03	-37.4	35.6
45.	2.26E+03	-190.	4.61E+03	-162.	4.51E+03	-53.8	50.0
65.	4.32E+03	-394.	8.59E+03	-331.	8.43E+03	-71.6	63.2

Table M-739. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	28.7	-2.63	60.0	-1.89	59.6	-6.12	6.17
15.	256.	-23.7	535.	-16.9	531.	-18.2	18.3
30.	999.	-94.6	2.07E+03	-67.3	2.05E+03	-35.5	35.1
45.	2.15E+03	-212.	4.40E+03	-150.	4.36E+03	-51.1	49.1
65.	4.11E+03	-441.	8.21E+03	-305.	8.10E+03	-67.9	61.4

Table M-740. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	12.8	-2.38	28.0	-2.14	28.0	-2.99	3.04
15.	115.	-21.4	252.	-19.3	252.	-8.97	9.13
30.	461.	-85.7	1.01E+03	-77.1	1.01E+03	-17.9	18.3
45.	1.04E+03	-193.	2.27E+03	-173.	2.27E+03	-26.9	27.4
65.	2.16E+03	-402.	4.73E+03	-362.	4.73E+03	-38.9	39.5

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Table M-741. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	12.8	-2.22	27.8	-1.99	27.8	-2.96	3.00
15.	115.	-19.9	250.	-17.9	250.	-8.87	9.01
30.	461.	-79.7	1.00E+03	-71.6	1.00E+03	-17.7	18.0
45.	1.04E+03	-179.	2.25E+03	-161.	2.25E+03	-26.6	27.0
65.	2.16E+03	-374.	4.70E+03	-336.	4.70E+03	-38.5	39.0

Table M-742. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	29.8	-67.9	107.	-20.0	85.1	-9.97	11.1
15.	227.	-298.	695.	-222.	666.	-29.9	29.3
30.	680.	-713.	2.47E+03	-591.	2.19E+03	-42.4	50.3
45.	1.06E+03	-769.	4.75E+03	-516.	3.96E+03	-35.1	64.3
65.	1.63E+03	-2.82E+03	9.41E+03	-2.01E+03	6.79E+03	-56.0	79.4

# TASK 1/ROLL MOTION/MODEL 5613

Table M-743. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-744. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	17.5	-123.	171.	-60.1	83.6	-15.5	13.2
15.	147.	-596.	911.	-176.	664.	-21.6	34.4
30.	506.	-1.01E+03	3.03E+03	-864.	2.46E+03	-45.7	65.2
45.	961.	-2.77E+03	9.24E+03	-2.31E+03	5.75E+03	-72.7	107.
65.	1.76E+03	-8.99E+03	2.15E+04	-6.50E+03	1.19E+04	-127.	156.

# TASK 1/ROLL MOTION/MODEL 5613

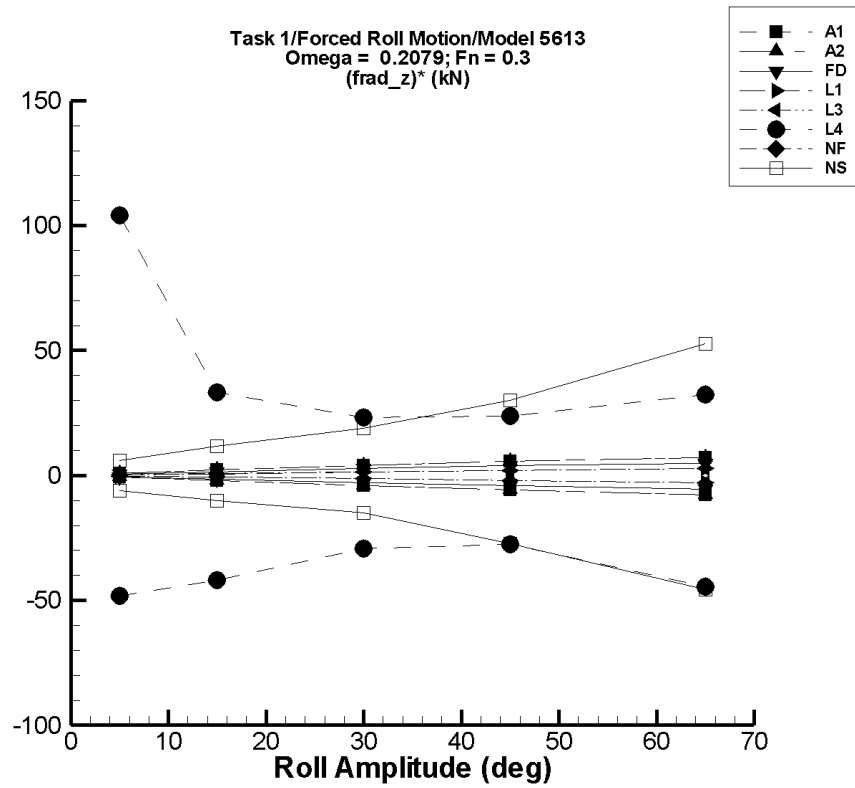


Figure M-94. Minimum and Maximum of  $(F_z^{rad})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-745. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	2.88	-0.776	6.47	-0.600	6.44	-0.695	0.713
15.	25.7	-7.05	57.6	-5.45	57.3	-2.08	2.11
30.	100.	-28.2	223.	-21.8	222.	-4.06	4.06
45.	216.	-63.2	475.	-48.8	473.	-5.87	5.71
65.	412.	-131.	886.	-101.	883.	-7.89	7.25

Table M-746. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	2.88	-0.776	6.47	-0.600	6.44	-0.695	0.713
15.	25.7	-7.05	57.6	-5.45	57.3	-2.08	2.11
30.	100.	-28.2	223.	-21.8	222.	-4.06	4.06
45.	216.	-63.2	475.	-48.8	473.	-5.87	5.71
65.	412.	-131.	886.	-101.	883.	-7.89	7.25



TASK 1/ROLL MOTION/MODEL 5613

Table M-747. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	2.49	-3.42E-04	4.97	-8.38E-03	4.96	-0.499	0.495
15.	22.2	-3.08E-03	44.3	-7.42E-02	44.2	-1.49	1.47
30.	86.6	-1.23E-02	171.	-0.281	171.	-2.89	2.81
45.	186.	-2.77E-02	363.	-0.574	362.	-4.16	3.91
65.	356.	-5.78E-02	672.	-0.973	671.	-5.50	4.84

Table M-748. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-0.225	0.230
15.	-3.72E+03	-3.73E+03	-3.71E+03	-3.73E+03	-3.71E+03	-0.649	0.652
30.	-3.70E+03	-3.73E+03	-3.66E+03	-3.73E+03	-3.66E+03	-1.30	1.30
45.	-3.65E+03	-3.74E+03	-3.56E+03	-3.73E+03	-3.56E+03	-1.94	1.94
65.	-3.55E+03	-3.74E+03	-3.37E+03	-3.74E+03	-3.37E+03	-2.80	2.81

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Table M-749. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-0.306	0.296
15.	-3.72E+03	-3.73E+03	-3.71E+03	-3.73E+03	-3.71E+03	-0.678	0.673
30.	-3.70E+03	-3.73E+03	-3.66E+03	-3.73E+03	-3.66E+03	-1.31	1.31
45.	-3.65E+03	-3.74E+03	-3.56E+03	-3.74E+03	-3.56E+03	-1.95	1.95
65.	-3.55E+03	-3.74E+03	-3.37E+03	-3.74E+03	-3.37E+03	-2.81	2.81

Table M-750. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.80E+03	-4.10E+03	-2.58E+03	-4.04E+03	-3.28E+03	-48.2	104.
15.	-3.79E+03	-4.53E+03	-2.94E+03	-4.42E+03	-3.29E+03	-42.1	33.2
30.	-3.59E+03	-4.62E+03	-2.47E+03	-4.47E+03	-2.90E+03	-29.3	23.2
45.	-3.28E+03	-4.62E+03	-1.46E+03	-4.52E+03	-2.21E+03	-27.5	23.9
65.	-2.61E+03	-6.81E+03	491.	-5.50E+03	-513.	-44.4	32.3

TASK 1/ROLL MOTION/MODEL 5613

Table M-751. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-752. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	3.81	-38.7	47.0	-27.1	33.2	-6.18	5.87
15.	23.6	-276.	310.	-127.	200.	-10.1	11.7
30.	75.7	-541.	860.	-375.	645.	-15.0	19.0
45.	170.	-1.20E+03	2.01E+03	-1.06E+03	1.52E+03	-27.3	29.9
65.	347.	-2.76E+03	5.19E+03	-2.63E+03	3.78E+03	-45.7	52.8

# TASK 1/ROLL MOTION/MODEL 5613

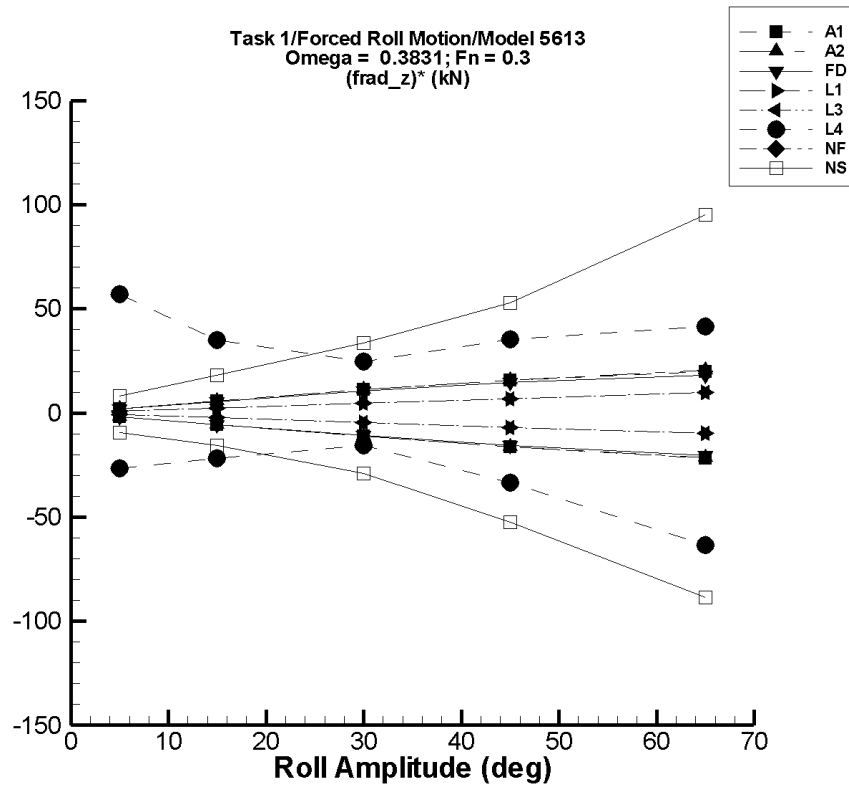


Figure M-95. Minimum and Maximum of  $(F_z^{rad})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-753. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.23	-1.59	18.1	-1.41	18.0	-1.93	1.95
15.	73.5	-14.4	162.	-12.8	160.	-5.75	5.78
30.	286.	-57.7	625.	-51.2	620.	-11.3	11.1
45.	617.	-129.	1.33E+03	-115.	1.32E+03	-16.3	15.7
65.	1.18E+03	-268.	2.49E+03	-237.	2.47E+03	-21.8	19.9

Table M-754. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.23	-1.59	18.1	-1.41	18.0	-1.93	1.95
15.	73.5	-14.4	162.	-12.8	160.	-5.75	5.78
30.	286.	-57.7	625.	-51.2	620.	-11.3	11.1
45.	617.	-129.	1.33E+03	-115.	1.32E+03	-16.3	15.7
65.	1.18E+03	-298.	2.53E+03	-225.	2.51E+03	-21.6	20.4

TASK 1/ROLL MOTION/MODEL 5613

Table M-755. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.33	-2.20E-02	18.7	6.39E-03	18.5	-1.87	1.84
15.	83.4	-0.198	166.	5.87E-02	165.	-5.55	5.46
30.	325.	-0.791	643.	0.252	639.	-10.8	10.5
45.	700.	-1.78	1.36E+03	0.627	1.36E+03	-15.5	14.6
65.	1.34E+03	-3.71	2.53E+03	1.55	2.51E+03	-20.6	18.0

Table M-756. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-0.765	0.774
15.	-3.70E+03	-3.74E+03	-3.67E+03	-3.74E+03	-3.67E+03	-2.29	2.30
30.	-3.60E+03	-3.74E+03	-3.46E+03	-3.74E+03	-3.46E+03	-4.57	4.60
45.	-3.44E+03	-3.75E+03	-3.13E+03	-3.75E+03	-3.13E+03	-6.85	6.90
65.	-3.11E+03	-3.76E+03	-2.47E+03	-3.76E+03	-2.47E+03	-9.90	9.96

TASK 1/ROLL MOTION/MODEL 5613

Table M-757. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-0.779	0.808
15.	-3.70E+03	-3.74E+03	-3.67E+03	-3.74E+03	-3.67E+03	-2.30	2.30
30.	-3.60E+03	-3.74E+03	-3.46E+03	-3.74E+03	-3.46E+03	-4.58	4.59
45.	-3.44E+03	-3.75E+03	-3.13E+03	-3.75E+03	-3.13E+03	-6.87	6.87
65.	-3.12E+03	-3.76E+03	-2.47E+03	-3.76E+03	-2.47E+03	-9.92	9.93

Table M-758. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.81E+03	-4.19E+03	-3.21E+03	-3.94E+03	-3.53E+03	-26.7	57.1
15.	-3.79E+03	-4.18E+03	-3.17E+03	-4.12E+03	-3.27E+03	-21.7	34.9
30.	-3.58E+03	-4.11E+03	-2.59E+03	-4.06E+03	-2.84E+03	-15.7	24.8
45.	-3.22E+03	-4.82E+03	-1.30E+03	-4.73E+03	-1.63E+03	-33.5	35.3
65.	-2.46E+03	-7.50E+03	791.	-6.59E+03	237.	-63.5	41.5

# TASK 1/ROLL MOTION/MODEL 5613

Table M-759. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-760. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.20	-74.3	80.0	-38.1	50.3	-9.46	8.22
15.	64.5	-491.	581.	-170.	339.	-15.6	18.3
30.	206.	-1.05E+03	1.70E+03	-669.	1.22E+03	-29.2	33.7
45.	412.	-2.36E+03	4.12E+03	-1.94E+03	2.80E+03	-52.4	53.0
65.	820.	-5.30E+03	1.01E+04	-4.95E+03	7.01E+03	-88.7	95.2



# TASK 1/ROLL MOTION/MODEL 5613

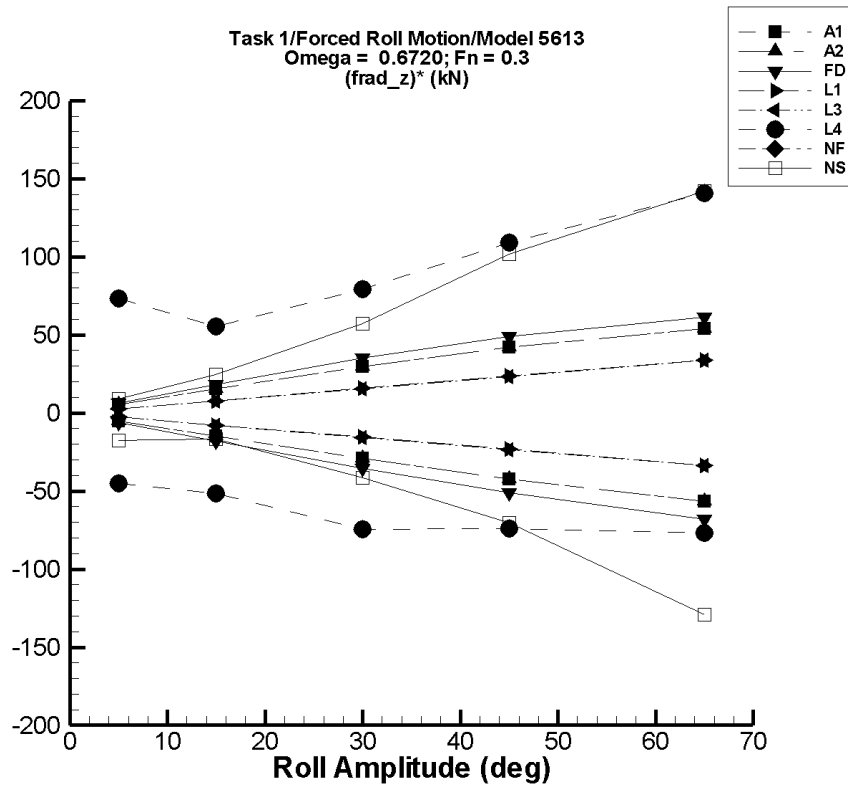


Figure M-96. Minimum and Maximum of  $(F_z^{rad})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-761. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	20.6	-6.12	47.6	-4.48	46.3	-5.02	5.14
15.	184.	-54.7	424.	-40.4	413.	-15.0	15.3
30.	717.	-218.	1.64E+03	-161.	1.60E+03	-29.3	29.5
45.	1.54E+03	-487.	3.52E+03	-360.	3.43E+03	-42.3	41.9
65.	2.95E+03	-1.00E+03	6.62E+03	-741.	6.47E+03	-56.8	54.0

Table M-762. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	20.6	-6.12	47.6	-4.48	46.3	-5.02	5.14
15.	184.	-54.7	424.	-40.4	413.	-15.0	15.3
30.	717.	-218.	1.64E+03	-161.	1.60E+03	-29.3	29.5
45.	1.54E+03	-487.	3.52E+03	-360.	3.43E+03	-42.3	41.9
65.	2.95E+03	-1.00E+03	6.62E+03	-741.	6.47E+03	-56.8	54.0

TASK 1/ROLL MOTION/MODEL 5613

Table M-763. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	28.7	-2.63	60.0	-1.89	59.6	-6.12	6.17
15.	256.	-23.7	535.	-16.9	531.	-18.2	18.3
30.	999.	-94.6	2.07E+03	-67.3	2.05E+03	-35.5	35.1
45.	2.15E+03	-212.	4.40E+03	-150.	4.36E+03	-51.1	49.1
65.	4.11E+03	-441.	8.21E+03	-305.	8.10E+03	-67.9	61.4

Table M-764. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.72E+03	-3.74E+03	-3.71E+03	-3.74E+03	-3.71E+03	-2.58	2.63
15.	-3.64E+03	-3.76E+03	-3.52E+03	-3.76E+03	-3.52E+03	-7.76	7.85
30.	-3.36E+03	-3.83E+03	-2.89E+03	-3.83E+03	-2.89E+03	-15.5	15.7
45.	-2.89E+03	-3.96E+03	-1.83E+03	-3.94E+03	-1.84E+03	-23.3	23.5
65.	-1.98E+03	-4.20E+03	236.	-4.17E+03	228.	-33.6	34.0

TASK 1/ROLL MOTION/MODEL 5613

Table M-765. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.72E+03	-3.74E+03	-3.71E+03	-3.74E+03	-3.71E+03	-2.64	2.64
15.	-3.64E+03	-3.76E+03	-3.52E+03	-3.76E+03	-3.52E+03	-7.83	7.82
30.	-3.36E+03	-3.84E+03	-2.88E+03	-3.83E+03	-2.89E+03	-15.6	15.6
45.	-2.89E+03	-3.97E+03	-1.82E+03	-3.95E+03	-1.84E+03	-23.4	23.4
65.	-1.98E+03	-4.22E+03	256.	-4.18E+03	219.	-33.9	33.9

Table M-766. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.81E+03	-4.05E+03	-3.25E+03	-4.03E+03	-3.44E+03	-44.9	73.3
15.	-3.79E+03	-4.59E+03	-2.84E+03	-4.56E+03	-2.96E+03	-51.5	55.3
30.	-3.55E+03	-5.86E+03	-894.	-5.79E+03	-1.18E+03	-74.6	79.0
45.	-3.11E+03	-6.53E+03	2.41E+03	-6.45E+03	1.79E+03	-74.1	109.
65.	-2.65E+03	-8.19E+03	7.57E+03	-7.65E+03	6.50E+03	-76.9	141.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-767. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-768. Minimum and Maximum of  $F_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered $F_z^{\text{rad}}$		Filtered $F_z^{\text{rad}}$		Filtered $(F_z^{\text{rad}})^*$	
		Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	19.5	-138.	159.	-68.2	63.6	-17.5	8.81
15.	152.	-695.	763.	-100.	524.	-16.9	24.8
30.	499.	-1.13E+03	2.75E+03	-746.	2.21E+03	-41.5	57.0
45.	928.	-2.85E+03	9.29E+03	-2.24E+03	5.50E+03	-70.4	102.
65.	1.68E+03	-9.28E+03	2.07E+04	-6.70E+03	1.09E+04	-129.	142.

# TASK 1/ROLL MOTION/MODEL 5613

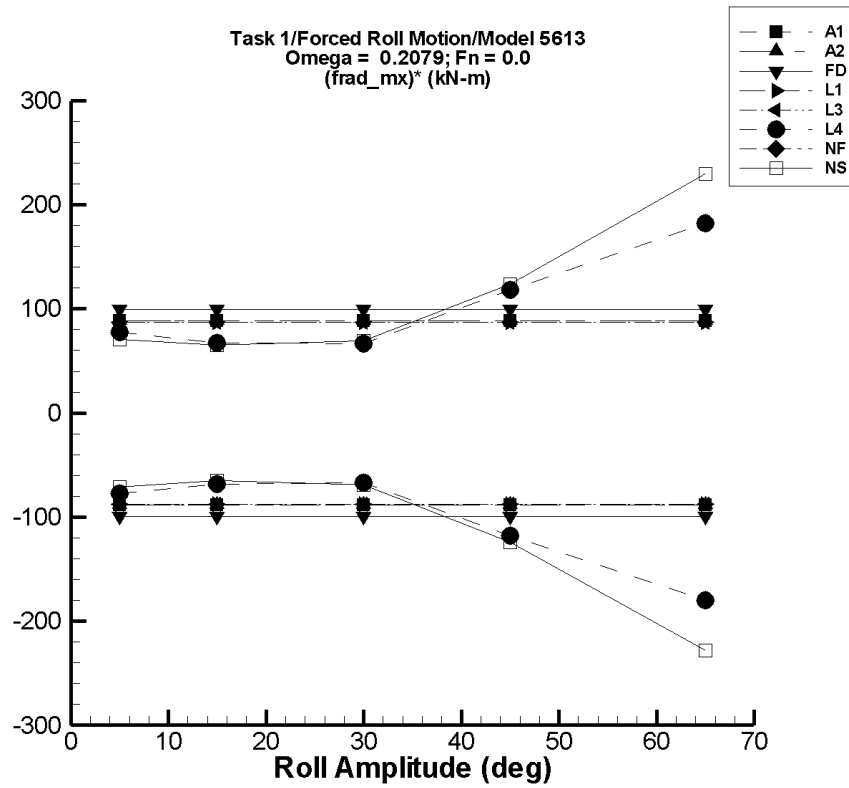


Figure M-97. Minimum and Maximum of  $(M_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

TASK 1/ROLL MOTION/MODEL 5613

Table M-769. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.348	-466.	467.	-442.	443.	-88.3	88.6
15.	-1.04	-1.40E+03	1.40E+03	-1.33E+03	1.33E+03	-88.3	88.6
30.	-2.09	-2.80E+03	2.80E+03	-2.65E+03	2.66E+03	-88.3	88.6
45.	-3.13	-4.20E+03	4.20E+03	-3.98E+03	3.98E+03	-88.3	88.6
65.	-4.53	-6.06E+03	6.07E+03	-5.74E+03	5.75E+03	-88.3	88.6

Table M-770. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.348	-466.	467.	-442.	443.	-88.3	88.6
15.	-1.04	-1.40E+03	1.40E+03	-1.33E+03	1.33E+03	-88.3	88.6
30.	-2.09	-2.80E+03	2.80E+03	-2.65E+03	2.66E+03	-88.3	88.6
45.	-3.13	-4.20E+03	4.20E+03	-3.98E+03	3.98E+03	-88.3	88.6
65.	-4.53	-6.06E+03	6.07E+03	-5.74E+03	5.75E+03	-88.3	88.6

TASK 1/ROLL MOTION/MODEL 5613

Table M-771. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	2.35E-05	-497.	497.	-497.	497.	-99.4	99.4
15.	3.17E-05	-1.49E+03	1.49E+03	-1.49E+03	1.49E+03	-99.4	99.4
30.	-3.17E-05	-2.98E+03	2.98E+03	-2.98E+03	2.98E+03	-99.4	99.4
45.	1.75E-04	-4.48E+03	4.48E+03	-4.47E+03	4.47E+03	-99.4	99.4
65.	-1.16E-04	-6.47E+03	6.47E+03	-6.46E+03	6.46E+03	-99.4	99.4

Table M-772. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-1.88E-05	-437.	437.	-437.	437.	-87.3	87.3
15.	1.16E-03	-1.31E+03	1.31E+03	-1.31E+03	1.31E+03	-87.3	87.3
30.	4.22E-03	-2.62E+03	2.62E+03	-2.62E+03	2.62E+03	-87.3	87.3
45.	8.69E-03	-3.93E+03	3.93E+03	-3.93E+03	3.93E+03	-87.3	87.3
65.	2.12E-02	-5.68E+03	5.68E+03	-5.68E+03	5.68E+03	-87.3	87.3



Table M-773. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-2.34E-05	-437.	437.	-437.	437.	-87.3	87.3
15.	1.16E-03	-1.31E+03	1.31E+03	-1.31E+03	1.31E+03	-87.3	87.3
30.	4.17E-03	-2.62E+03	2.62E+03	-2.62E+03	2.62E+03	-87.3	87.3
45.	8.53E-03	-3.93E+03	3.93E+03	-3.93E+03	3.93E+03	-87.3	87.3
65.	2.15E-02	-5.68E+03	5.68E+03	-5.68E+03	5.68E+03	-87.3	87.3

Table M-774. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	0.901	-387.	387.	-387.	387.	-77.6	77.2
15.	4.09	-1.02E+03	1.02E+03	-1.02E+03	1.02E+03	-68.1	67.5
30.	9.29	-2.02E+03	2.02E+03	-2.01E+03	2.00E+03	-67.2	66.5
45.	-17.8	-5.37E+03	5.38E+03	-5.32E+03	5.30E+03	-118.	118.
65.	-59.5	-1.18E+04	1.19E+04	-1.18E+04	1.18E+04	-180.	182.

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Table M-775. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-776. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.32E-02	-358.	358.	-354.	354.	-70.9	70.8
15.	-0.139	-988.	987.	-975.	972.	-65.0	64.8
30.	-0.834	-2.17E+03	2.16E+03	-2.08E+03	2.07E+03	-69.2	69.0
45.	-4.28	-5.63E+03	5.61E+03	-5.59E+03	5.55E+03	-124.	123.
65.	11.9	-1.49E+04	1.51E+04	-1.48E+04	1.50E+04	-228.	230.

# TASK 1/ROLL MOTION/MODEL 5613

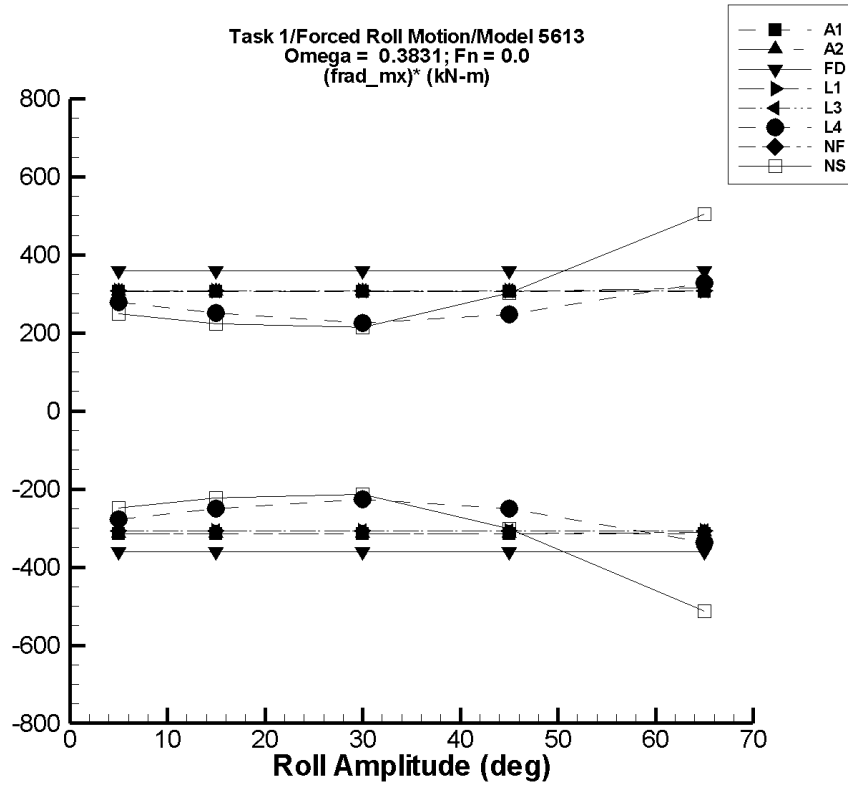


Figure M-98. Minimum and Maximum of  $(M_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M-777. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-1.60	-1.58E+03	1.56E+03	-1.58E+03	1.53E+03	-315.	305.
15.	-4.81	-4.75E+03	4.67E+03	-4.72E+03	4.57E+03	-315.	305.
30.	-9.62	-9.50E+03	9.34E+03	-9.45E+03	9.15E+03	-315.	305.
45.	-14.4	-1.42E+04	1.40E+04	-1.42E+04	1.37E+04	-315.	305.
65.	-20.8	-2.06E+04	2.02E+04	-2.05E+04	1.98E+04	-315.	305.

Table M-778. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-1.60	-1.58E+03	1.56E+03	-1.58E+03	1.53E+03	-315.	305.
15.	-4.81	-4.75E+03	4.67E+03	-4.72E+03	4.57E+03	-315.	305.
30.	-9.62	-9.50E+03	9.34E+03	-9.45E+03	9.15E+03	-315.	305.
45.	-14.4	-1.42E+04	1.40E+04	-1.42E+04	1.37E+04	-315.	305.
65.	-9.80	-2.04E+04	2.05E+04	-2.02E+04	2.04E+04	-310.	315.

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Table M-779. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	4.24E-04	-1.80E+03	1.80E+03	-1.80E+03	1.80E+03	-360.	360.
15.	1.26E-03	-5.41E+03	5.41E+03	-5.39E+03	5.39E+03	-360.	360.
30.	3.03E-03	-1.08E+04	1.08E+04	-1.08E+04	1.08E+04	-360.	360.
45.	2.27E-03	-1.62E+04	1.62E+04	-1.62E+04	1.62E+04	-360.	360.
65.	8.81E-03	-2.35E+04	2.35E+04	-2.34E+04	2.34E+04	-360.	360.

Table M-780. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	1.74E-02	-1.54E+03	1.54E+03	-1.53E+03	1.54E+03	-307.	307.
15.	5.54E-02	-4.61E+03	4.61E+03	-4.60E+03	4.61E+03	-307.	307.
30.	0.120	-9.22E+03	9.22E+03	-9.21E+03	9.21E+03	-307.	307.
45.	0.190	-1.38E+04	1.38E+04	-1.38E+04	1.38E+04	-307.	307.
65.	0.296	-2.00E+04	2.00E+04	-1.99E+04	2.00E+04	-307.	307.

Table M-781. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	1.66E-02	-1.54E+03	1.54E+03	-1.53E+03	1.53E+03	-307.	307.
15.	5.30E-02	-4.61E+03	4.61E+03	-4.60E+03	4.60E+03	-307.	307.
30.	0.115	-9.22E+03	9.22E+03	-9.21E+03	9.21E+03	-307.	307.
45.	0.185	-1.38E+04	1.38E+04	-1.38E+04	1.38E+04	-307.	307.
65.	0.284	-2.00E+04	2.00E+04	-1.99E+04	2.00E+04	-307.	307.

Table M-782. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	Filtered $(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	6.79E-02	-1.39E+03	1.39E+03	-1.39E+03	1.39E+03	-279.	278.
15.	-2.67	-3.77E+03	3.77E+03	-3.76E+03	3.76E+03	-251.	251.
30.	-6.77	-6.78E+03	6.78E+03	-6.78E+03	6.73E+03	-226.	225.
45.	-34.0	-1.14E+04	1.15E+04	-1.13E+04	1.11E+04	-250.	247.
65.	-103.	-2.28E+04	2.35E+04	-2.20E+04	2.13E+04	-336.	329.

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Table M-783. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-784. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.53E-02	-1.25E+03	1.26E+03	-1.24E+03	1.24E+03	-248.	248.
15.	0.254	-3.38E+03	3.39E+03	-3.33E+03	3.34E+03	-222.	222.
30.	1.26	-6.79E+03	6.78E+03	-6.40E+03	6.40E+03	-213.	213.
45.	3.47	-1.37E+04	1.37E+04	-1.36E+04	1.36E+04	-302.	303.
65.	-10.7	-3.35E+04	3.37E+04	-3.33E+04	3.28E+04	-512.	504.

# TASK 1/ROLL MOTION/MODEL 5613

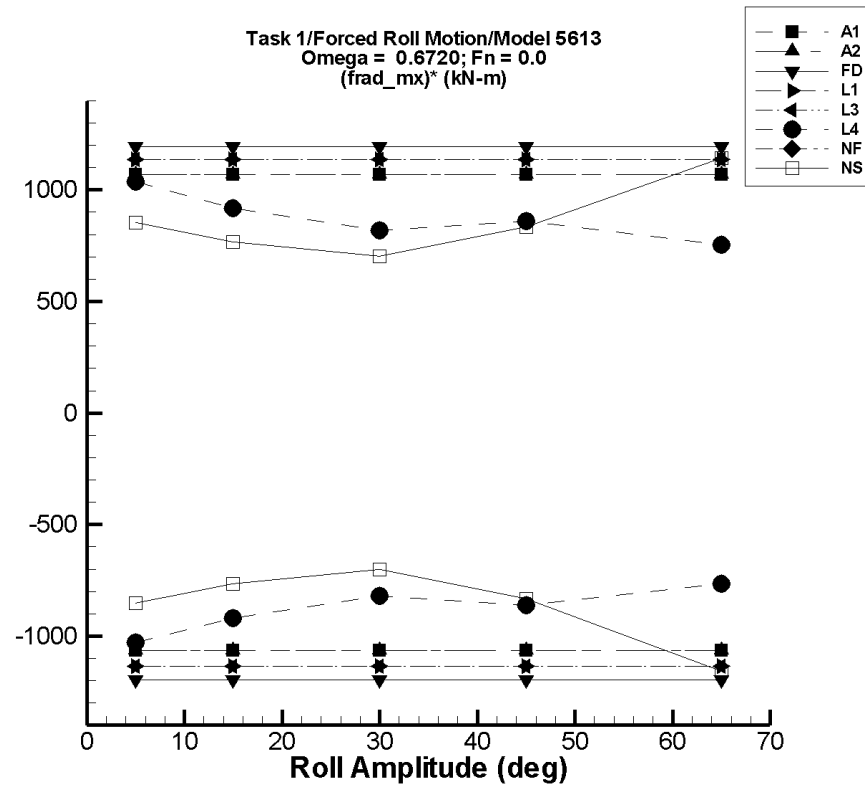


Figure M-99. Minimum and Maximum of  $(M_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.



Table M-785. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-1.50	-5.38E+03	5.40E+03	-5.32E+03	5.34E+03	-1.06E+03	1.07E+03
15.	-4.51	-1.61E+04	1.62E+04	-1.59E+04	1.60E+04	-1.06E+03	1.07E+03
30.	-9.01	-3.23E+04	3.24E+04	-3.19E+04	3.20E+04	-1.06E+03	1.07E+03
45.	-13.5	-4.84E+04	4.86E+04	-4.78E+04	4.80E+04	-1.06E+03	1.07E+03
65.	-19.5	-6.99E+04	7.02E+04	-6.91E+04	6.94E+04	-1.06E+03	1.07E+03

Table M-786. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-1.50	-5.38E+03	5.40E+03	-5.32E+03	5.34E+03	-1.06E+03	1.07E+03
15.	-4.51	-1.61E+04	1.62E+04	-1.59E+04	1.60E+04	-1.06E+03	1.07E+03
30.	-9.01	-3.23E+04	3.24E+04	-3.19E+04	3.20E+04	-1.06E+03	1.07E+03
45.	-13.5	-4.84E+04	4.86E+04	-4.78E+04	4.80E+04	-1.06E+03	1.07E+03
65.	-19.5	-6.99E+04	7.02E+04	-6.91E+04	6.94E+04	-1.06E+03	1.07E+03

Table M-787. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.03E-02	-6.03E+03	6.03E+03	-5.97E+03	5.96E+03	-1.19E+03	1.19E+03
15.	-3.13E-02	-1.81E+04	1.81E+04	-1.79E+04	1.79E+04	-1.19E+03	1.19E+03
30.	-6.20E-02	-3.62E+04	3.62E+04	-3.58E+04	3.58E+04	-1.19E+03	1.19E+03
45.	-8.94E-02	-5.43E+04	5.43E+04	-5.38E+04	5.37E+04	-1.19E+03	1.19E+03
65.	-0.131	-7.84E+04	7.84E+04	-7.76E+04	7.75E+04	-1.19E+03	1.19E+03

Table M-788. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	4.80E-02	-5.70E+03	5.70E+03	-5.68E+03	5.68E+03	-1.14E+03	1.14E+03
15.	0.150	-1.71E+04	1.71E+04	-1.70E+04	1.70E+04	-1.14E+03	1.14E+03
30.	0.330	-3.42E+04	3.42E+04	-3.41E+04	3.41E+04	-1.14E+03	1.14E+03
45.	0.543	-5.13E+04	5.13E+04	-5.11E+04	5.11E+04	-1.14E+03	1.14E+03
65.	0.845	-7.41E+04	7.41E+04	-7.38E+04	7.38E+04	-1.14E+03	1.14E+03

Table M-789. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	4.50E-02	-5.70E+03	5.70E+03	-5.68E+03	5.67E+03	-1.14E+03	1.13E+03
15.	0.144	-1.71E+04	1.71E+04	-1.70E+04	1.70E+04	-1.14E+03	1.13E+03
30.	0.317	-3.42E+04	3.42E+04	-3.41E+04	3.40E+04	-1.14E+03	1.13E+03
45.	0.511	-5.13E+04	5.13E+04	-5.11E+04	5.11E+04	-1.14E+03	1.13E+03
65.	0.809	-7.41E+04	7.41E+04	-7.38E+04	7.38E+04	-1.14E+03	1.13E+03

Table M-790. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-2.98	-5.18E+03	5.21E+03	-5.15E+03	5.17E+03	-1.03E+03	1.03E+03
15.	27.8	-1.39E+04	1.39E+04	-1.38E+04	1.38E+04	-921.	917.
30.	-50.0	-2.50E+04	2.50E+04	-2.46E+04	2.45E+04	-819.	817.
45.	-95.2	-3.97E+04	3.97E+04	-3.89E+04	3.86E+04	-863.	860.
65.	-247.	-5.50E+04	5.18E+04	-5.00E+04	4.87E+04	-765.	753.

# TASK 1/ROLL MOTION/MODEL 5613

Table M-791. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-792. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.929	-4.32E+03	4.32E+03	-4.26E+03	4.27E+03	-853.	853.
15.	-1.74	-1.18E+04	1.18E+04	-1.15E+04	1.15E+04	-765.	765.
30.	0.491	-2.26E+04	2.27E+04	-2.10E+04	2.11E+04	-702.	703.
45.	5.68	-4.49E+04	3.99E+04	-3.74E+04	3.75E+04	-832.	833.
65.	-24.2	-7.92E+04	8.61E+04	-7.53E+04	7.43E+04	-1.16E+03	1.14E+03

# TASK 1/ROLL MOTION/MODEL 5613

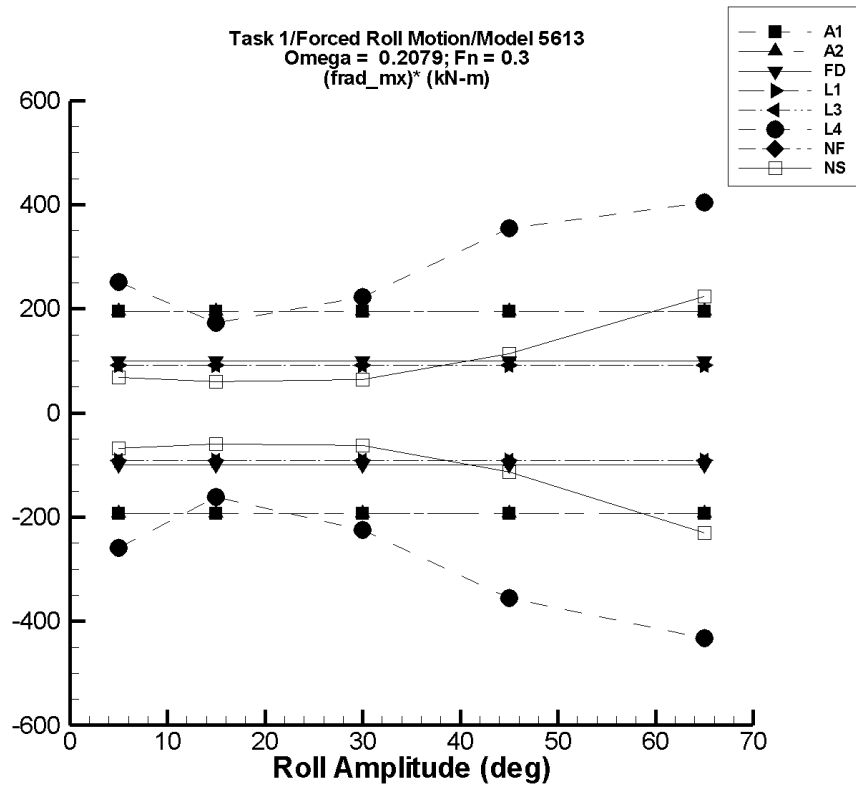


Figure M-100. Minimum and Maximum of  $(M_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M-793. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-0.405	-975.	983.	-967.	973.	-193.	195.
15.	-1.21	-2.92E+03	2.95E+03	-2.90E+03	2.92E+03	-193.	195.
30.	-2.43	-5.85E+03	5.89E+03	-5.80E+03	5.84E+03	-193.	195.
45.	-3.64	-8.77E+03	8.84E+03	-8.70E+03	8.76E+03	-193.	195.
65.	-5.26	-1.27E+04	1.28E+04	-1.26E+04	1.26E+04	-193.	195.

Table M-794. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-0.405	-975.	983.	-967.	973.	-193.	195.
15.	-1.21	-2.92E+03	2.95E+03	-2.90E+03	2.92E+03	-193.	195.
30.	-2.43	-5.85E+03	5.89E+03	-5.80E+03	5.84E+03	-193.	195.
45.	-3.64	-8.77E+03	8.84E+03	-8.70E+03	8.76E+03	-193.	195.
65.	-5.26	-1.27E+04	1.28E+04	-1.26E+04	1.26E+04	-193.	195.

TASK 1/ROLL MOTION/MODEL 5613

Table M-795. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-8.74E-06	-497.	497.	-497.	497.	-99.4	99.4
15.	3.17E-05	-1.49E+03	1.49E+03	-1.49E+03	1.49E+03	-99.4	99.4
30.	-3.17E-05	-2.98E+03	2.98E+03	-2.98E+03	2.98E+03	-99.4	99.4
45.	1.75E-04	-4.48E+03	4.48E+03	-4.47E+03	4.47E+03	-99.4	99.4
65.	-1.16E-04	-6.47E+03	6.47E+03	-6.46E+03	6.46E+03	-99.4	99.4

Table M-796. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	-1.70E-02	-458.	458.	-458.	458.	-91.6	91.6
15.	-1.71E-02	-1.37E+03	1.37E+03	-1.37E+03	1.37E+03	-91.5	91.6
30.	-1.40E-02	-2.75E+03	2.75E+03	-2.75E+03	2.75E+03	-91.5	91.5
45.	-1.13E-02	-4.12E+03	4.12E+03	-4.12E+03	4.12E+03	-91.5	91.5
65.	2.80E-04	-5.95E+03	5.95E+03	-5.95E+03	5.95E+03	-91.5	91.5

# TASK 1/ROLL MOTION/MODEL 5613

Table M-797. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	1.54E-02	-458.	458.	-458.	458.	-91.6	91.6
15.	1.71E-02	-1.37E+03	1.37E+03	-1.37E+03	1.37E+03	-91.6	91.6
30.	2.13E-02	-2.75E+03	2.75E+03	-2.75E+03	2.75E+03	-91.5	91.5
45.	2.60E-02	-4.12E+03	4.12E+03	-4.12E+03	4.12E+03	-91.5	91.6
65.	3.88E-02	-5.95E+03	5.95E+03	-5.95E+03	5.95E+03	-91.5	91.5

Table M-798. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	51.0	-2.10E+03	1.69E+03	-1.25E+03	1.31E+03	-260.	252.
15.	107.	-3.75E+03	7.45E+03	-2.31E+03	2.70E+03	-161.	173.
30.	124.	-6.80E+03	7.23E+03	-6.64E+03	6.80E+03	-225.	223.
45.	74.9	-1.62E+04	1.66E+04	-1.59E+04	1.61E+04	-356.	355.
65.	297.	-3.76E+04	3.26E+04	-2.78E+04	2.65E+04	-432.	404.



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Table M-799. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-800. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.15E-02	-347.	348.	-343.	344.	-68.6	68.8
15.	0.355	-930.	938.	-895.	903.	-59.7	60.2
30.	0.483	-2.12E+03	2.13E+03	-1.89E+03	1.92E+03	-63.0	63.8
45.	-1.39	-5.17E+03	5.20E+03	-5.09E+03	5.13E+03	-113.	114.
65.	-53.7	-1.52E+04	1.49E+04	-1.51E+04	1.45E+04	-231.	224.

# TASK 1/ROLL MOTION/MODEL 5613

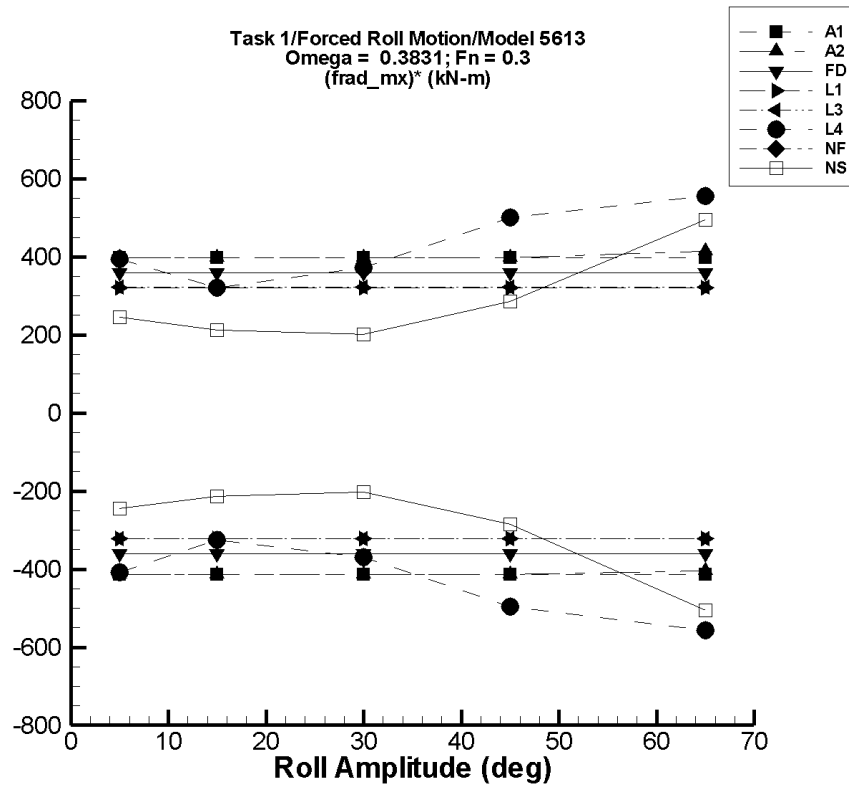


Figure M-101. Minimum and Maximum of  $(M_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

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Table M-801. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.28	-2.08E+03	2.02E+03	-2.07E+03	1.99E+03	-414.	398.
15.	-3.83	-6.25E+03	6.06E+03	-6.21E+03	5.96E+03	-413.	398.
30.	-7.67	-1.25E+04	1.21E+04	-1.24E+04	1.19E+04	-413.	398.
45.	-11.5	-1.88E+04	1.82E+04	-1.86E+04	1.79E+04	-413.	398.
65.	-16.6	-2.71E+04	2.63E+04	-2.69E+04	2.58E+04	-414.	398.

Table M-802. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.28	-2.08E+03	2.02E+03	-2.07E+03	1.99E+03	-414.	398.
15.	-3.83	-6.25E+03	6.06E+03	-6.21E+03	5.96E+03	-413.	398.
30.	-7.67	-1.25E+04	1.21E+04	-1.24E+04	1.19E+04	-413.	398.
45.	-11.5	-1.88E+04	1.82E+04	-1.86E+04	1.79E+04	-413.	398.
65.	-18.5	-2.64E+04	2.71E+04	-2.63E+04	2.69E+04	-404.	414.

Table M-803. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	4.24E-04	-1.80E+03	1.80E+03	-1.80E+03	1.80E+03	-360.	360.
15.	1.26E-03	-5.41E+03	5.41E+03	-5.39E+03	5.39E+03	-360.	360.
30.	3.03E-03	-1.08E+04	1.08E+04	-1.08E+04	1.08E+04	-360.	360.
45.	2.27E-03	-1.62E+04	1.62E+04	-1.62E+04	1.62E+04	-360.	360.
65.	8.81E-03	-2.35E+04	2.35E+04	-2.34E+04	2.34E+04	-360.	360.

Table M-804. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_x^{\text{rad}})^*$ Max. (kN-m/°)
5.	3.51E-02	-1.61E+03	1.61E+03	-1.61E+03	1.61E+03	-321.	321.
15.	4.48E-02	-4.82E+03	4.82E+03	-4.82E+03	4.82E+03	-321.	321.
30.	6.17E-02	-9.65E+03	9.65E+03	-9.63E+03	9.63E+03	-321.	321.
45.	8.96E-02	-1.45E+04	1.45E+04	-1.44E+04	1.44E+04	-321.	321.
65.	0.132	-2.09E+04	2.09E+04	-2.09E+04	2.09E+04	-321.	321.

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Table M-805. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	4.31E-02	-1.61E+03	1.61E+03	-1.61E+03	1.61E+03	-322.	322.
15.	5.02E-02	-4.83E+03	4.83E+03	-4.83E+03	4.83E+03	-322.	322.
30.	6.20E-02	-9.66E+03	9.66E+03	-9.65E+03	9.65E+03	-322.	322.
45.	8.44E-02	-1.45E+04	1.45E+04	-1.45E+04	1.45E+04	-322.	322.
65.	0.118	-2.09E+04	2.09E+04	-2.09E+04	2.09E+04	-322.	322.

Table M-806. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	30.5	-2.47E+03	2.46E+03	-2.01E+03	2.00E+03	-407.	395.
15.	38.6	-5.02E+03	4.96E+03	-4.86E+03	4.86E+03	-326.	321.
30.	-9.69	-1.12E+04	1.12E+04	-1.11E+04	1.11E+04	-370.	371.
45.	-117.	-2.28E+04	2.29E+04	-2.24E+04	2.24E+04	-496.	501.
65.	256.	-4.59E+04	5.38E+04	-3.60E+04	3.63E+04	-557.	555.

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Table M-807. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-808. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.368	-1.24E+03	1.24E+03	-1.22E+03	1.23E+03	-245.	245.
15.	3.02	-3.24E+03	3.25E+03	-3.19E+03	3.20E+03	-213.	213.
30.	8.98	-6.64E+03	6.64E+03	-6.06E+03	6.07E+03	-202.	202.
45.	19.0	-1.37E+04	1.30E+04	-1.28E+04	1.28E+04	-285.	285.
65.	5.22	-3.30E+04	3.37E+04	-3.28E+04	3.22E+04	-505.	496.

# TASK 1/ROLL MOTION/MODEL 5613

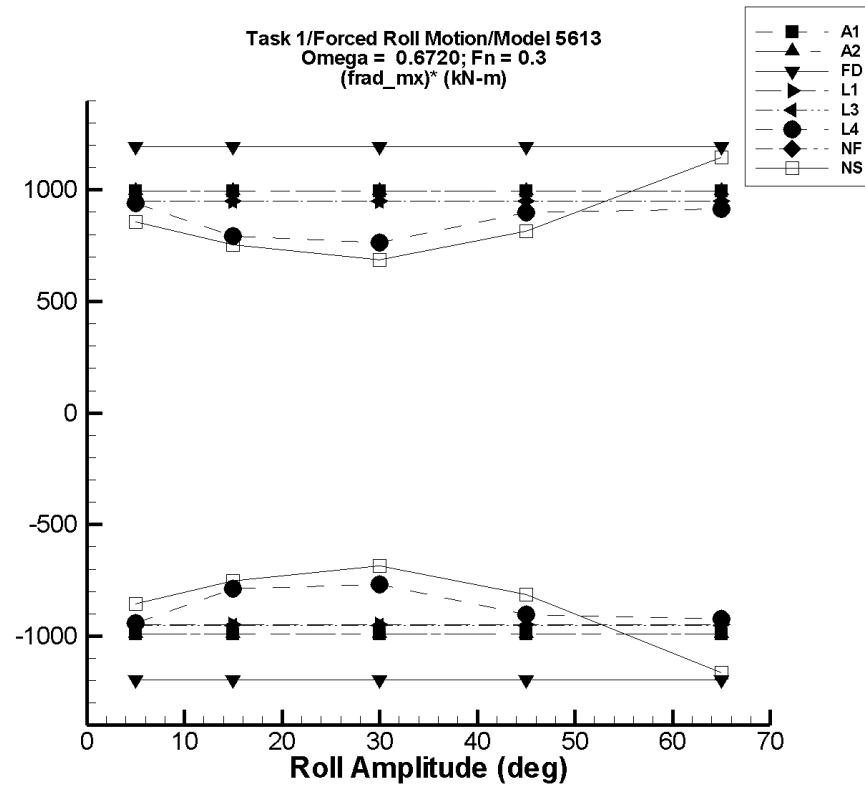


Figure M-102. Minimum and Maximum of  $(M_x^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-809. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.75	-5.01E+03	5.03E+03	-4.95E+03	4.97E+03	-990.	995.
15.	-11.3	-1.50E+04	1.51E+04	-1.49E+04	1.49E+04	-989.	994.
30.	-22.5	-3.01E+04	3.02E+04	-2.97E+04	2.98E+04	-989.	994.
45.	-33.8	-4.51E+04	4.53E+04	-4.46E+04	4.47E+04	-989.	994.
65.	-48.8	-6.52E+04	6.54E+04	-6.44E+04	6.46E+04	-989.	994.

Table M-810. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.75	-5.01E+03	5.03E+03	-4.95E+03	4.97E+03	-990.	995.
15.	-11.3	-1.50E+04	1.51E+04	-1.49E+04	1.49E+04	-989.	994.
30.	-22.5	-3.01E+04	3.02E+04	-2.97E+04	2.98E+04	-989.	994.
45.	-33.8	-4.51E+04	4.53E+04	-4.46E+04	4.47E+04	-989.	994.
65.	-48.8	-6.52E+04	6.54E+04	-6.44E+04	6.46E+04	-989.	994.



Table M-811. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.03E-02	-6.03E+03	6.03E+03	-5.97E+03	5.96E+03	-1.19E+03	1.19E+03
15.	-3.13E-02	-1.81E+04	1.81E+04	-1.79E+04	1.79E+04	-1.19E+03	1.19E+03
30.	-6.20E-02	-3.62E+04	3.62E+04	-3.58E+04	3.58E+04	-1.19E+03	1.19E+03
45.	-8.94E-02	-5.43E+04	5.43E+04	-5.38E+04	5.37E+04	-1.19E+03	1.19E+03
65.	-0.131	-7.84E+04	7.84E+04	-7.76E+04	7.75E+04	-1.19E+03	1.19E+03

Table M-812. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	3.00E-02	-4.77E+03	4.77E+03	-4.75E+03	4.75E+03	-949.	949.
15.	3.50E-02	-1.43E+04	1.43E+04	-1.42E+04	1.42E+04	-949.	949.
30.	6.44E-02	-2.86E+04	2.86E+04	-2.85E+04	2.85E+04	-949.	949.
45.	0.115	-4.29E+04	4.29E+04	-4.27E+04	4.27E+04	-949.	949.
65.	0.224	-6.19E+04	6.20E+04	-6.17E+04	6.17E+04	-949.	949.

Table M-813. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	4.02E-02	-4.77E+03	4.77E+03	-4.75E+03	4.75E+03	-951.	951.
15.	3.49E-02	-1.43E+04	1.43E+04	-1.43E+04	1.43E+04	-951.	951.
30.	4.78E-02	-2.86E+04	2.86E+04	-2.85E+04	2.85E+04	-951.	951.
45.	8.05E-02	-4.30E+04	4.30E+04	-4.28E+04	4.28E+04	-951.	951.
65.	0.151	-6.21E+04	6.21E+04	-6.18E+04	6.18E+04	-951.	951.

Table M-814. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_x^{\text{rad}}$ Max. (kN-m)	Filtered $(M_x^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	12.6	-5.15E+03	5.15E+03	-4.70E+03	4.71E+03	-943.	939.
15.	22.8	-1.19E+04	1.19E+04	-1.18E+04	1.19E+04	-788.	793.
30.	44.1	-2.32E+04	2.33E+04	-2.30E+04	2.30E+04	-768.	765.
45.	127.	-4.09E+04	4.10E+04	-4.06E+04	4.06E+04	-905.	900.
65.	236.	-6.14E+04	6.49E+04	-5.98E+04	5.98E+04	-924.	916.

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Table M-815. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-816. Minimum and Maximum of  $M_x^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_x^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_x^{\text{rad}}$		Filtered $M_x^{\text{rad}}$		Filtered $(M_x^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.664	-4.33E+03	4.34E+03	-4.28E+03	4.28E+03	-855.	856.
15.	0.566	-1.16E+04	1.16E+04	-1.13E+04	1.13E+04	-753.	753.
30.	7.26	-2.21E+04	2.21E+04	-2.06E+04	2.06E+04	-687.	688.
45.	17.2	-4.42E+04	3.86E+04	-3.66E+04	3.67E+04	-815.	814.
65.	-18.1	-7.75E+04	8.41E+04	-7.57E+04	7.45E+04	-1.16E+03	1.15E+03

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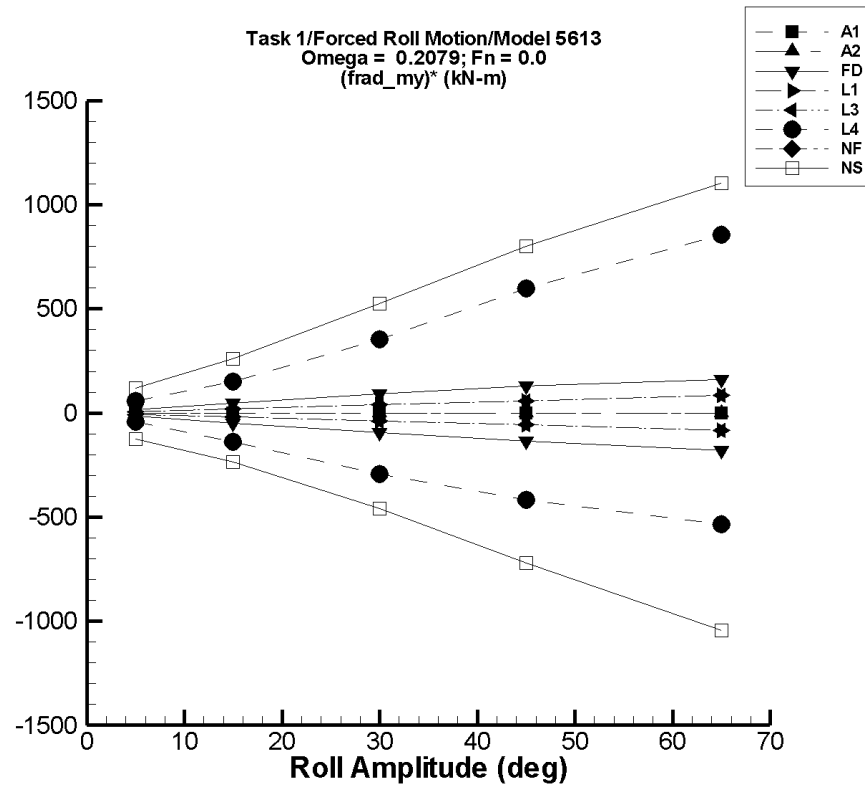


Figure M-103. Minimum and Maximum of  $(M_y^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M-817. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	<b>Unfiltered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>(M_y^{\text{rad}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	-1.26E-05	-7.51E-03	7.47E-03	-7.43E-03	7.39E-03	-1.48E-03	1.48E-03
15.	-3.77E-05	-2.25E-02	2.24E-02	-2.23E-02	2.21E-02	-1.48E-03	1.48E-03
30.	-7.54E-05	-4.50E-02	4.48E-02	-4.45E-02	4.43E-02	-1.48E-03	1.48E-03
45.	-1.13E-04	-6.75E-02	6.72E-02	-6.68E-02	6.64E-02	-1.48E-03	1.48E-03
65.	-1.63E-04	-9.75E-02	9.71E-02	-9.65E-02	9.60E-02	-1.48E-03	1.48E-03

Table M-818. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	<b>Unfiltered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>(M_y^{\text{rad}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	-1.26E-05	-7.51E-03	7.47E-03	-7.43E-03	7.39E-03	-1.48E-03	1.48E-03
15.	-3.77E-05	-2.25E-02	2.24E-02	-2.23E-02	2.21E-02	-1.48E-03	1.48E-03
30.	-7.54E-05	-4.50E-02	4.48E-02	-4.45E-02	4.43E-02	-1.48E-03	1.48E-03
45.	-1.13E-04	-6.75E-02	6.72E-02	-6.68E-02	6.64E-02	-1.48E-03	1.48E-03
65.	-1.63E-04	-9.75E-02	9.71E-02	-9.65E-02	9.60E-02	-1.48E-03	1.48E-03

Table M-819. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	81.7	4.84E-03	163.	-0.157	163.	-16.4	16.3
15.	730.	4.35E-02	1.46E+03	-1.38	1.45E+03	-48.8	48.2
30.	2.85E+03	0.174	5.62E+03	-4.98	5.61E+03	-95.0	92.3
45.	6.13E+03	0.392	1.19E+04	-9.30	1.19E+04	-136.	128.
65.	1.17E+04	0.818	2.21E+04	-12.0	2.21E+04	-180.	159.

Table M-820. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.1	-6.67E-02	64.4	-1.17E-02	64.3	-6.43	6.44
15.	289.	-0.539	579.	-7.83E-02	579.	-19.3	19.3
30.	1.16E+03	-2.12	2.32E+03	-0.289	2.32E+03	-38.6	38.6
45.	2.60E+03	-4.73	5.21E+03	-0.628	5.21E+03	-57.9	57.9
65.	5.43E+03	-9.87	1.09E+04	-1.30	1.09E+04	-83.6	83.7

Table M-821. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	<b>Unfiltered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>(M_y^{\text{rad}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	32.1	-6.58E-02	64.4	-1.15E-02	64.3	-6.43	6.44
15.	289.	-0.540	579.	-7.71E-02	579.	-19.3	19.3
30.	1.16E+03	-2.11	2.32E+03	-0.288	2.32E+03	-38.6	38.6
45.	2.60E+03	-4.74	5.21E+03	-0.629	5.21E+03	-57.9	57.9
65.	5.43E+03	-9.87	1.09E+04	-1.30	1.09E+04	-83.6	83.7

Table M-822. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	<b>Unfiltered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>(M_y^{\text{rad}})^*</math></b>	
(°)	<b>Mean</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m)</b>	<b>(kN-m/°)</b>	<b>(kN-m/°)</b>
5.	19.9	-232.	311.	-199.	299.	-43.8	55.8
15.	192.	-1.95E+03	2.92E+03	-1.91E+03	2.46E+03	-140.	151.
30.	1.00E+03	-8.30E+03	1.23E+04	-7.84E+03	1.16E+04	-295.	354.
45.	2.90E+03	-1.60E+04	3.13E+04	-1.58E+04	2.98E+04	-416.	598.
65.	7.21E+03	-2.77E+04	6.64E+04	-2.75E+04	6.29E+04	-534.	857.

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Table M-823. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-824. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-6.89	-1.32E+03	1.69E+03	-636.	591.	-126.	120.
15.	15.1	-8.36E+03	8.72E+03	-3.52E+03	3.91E+03	-235.	260.
30.	183.	-2.11E+04	2.76E+04	-1.35E+04	1.59E+04	-457.	525.
45.	283.	-4.48E+04	7.18E+04	-3.22E+04	3.64E+04	-721.	802.
65.	1.82E+03	-7.82E+04	1.51E+05	-6.61E+04	7.35E+04	-1.05E+03	1.10E+03



# TASK 1/ROLL MOTION/MODEL 5613

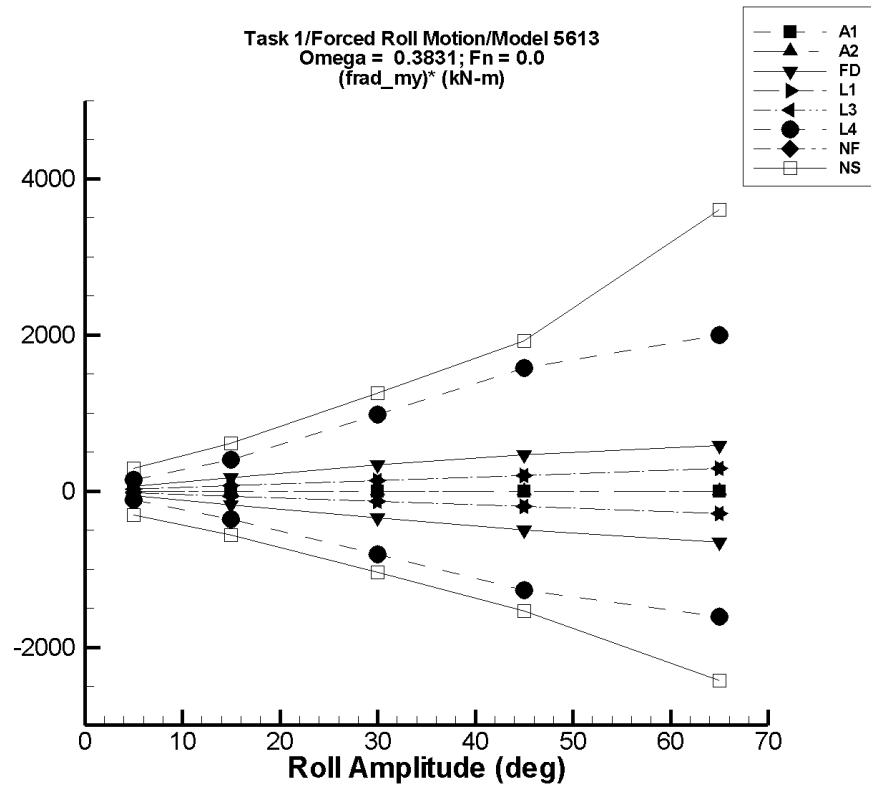


Figure M-104. Minimum and Maximum of  $(M_y^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

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Table M-825. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.14E-05	-2.36E-02	2.52E-02	-2.29E-02	2.49E-02	-4.57E-03	4.99E-03
15.	-1.24E-04	-7.09E-02	7.55E-02	-6.86E-02	7.48E-02	-4.57E-03	4.99E-03
30.	-2.48E-04	-0.142	0.151	-0.137	0.150	-4.57E-03	4.99E-03
45.	-3.73E-04	-0.213	0.227	-0.206	0.224	-4.57E-03	4.99E-03
65.	-5.38E-04	-0.307	0.327	-0.297	0.324	-4.57E-03	4.99E-03

Table M-826. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.14E-05	-2.36E-02	2.52E-02	-2.29E-02	2.49E-02	-4.57E-03	4.99E-03
15.	-1.24E-04	-7.09E-02	7.55E-02	-6.86E-02	7.48E-02	-4.57E-03	4.99E-03
30.	-2.48E-04	-0.142	0.151	-0.137	0.150	-4.57E-03	4.99E-03
45.	-3.73E-04	-0.213	0.227	-0.206	0.224	-4.57E-03	4.99E-03
65.	-1.28E-04	-0.331	0.300	-0.325	0.299	-5.00E-03	4.59E-03

Table M-827. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	300.	-0.304	600.	1.15	596.	-59.8	59.2
15.	2.68E+03	-2.73	5.35E+03	10.4	5.31E+03	-178.	175.
30.	1.04E+04	-10.9	2.07E+04	42.0	2.05E+04	-347.	336.
45.	2.25E+04	-24.6	4.38E+04	96.4	4.35E+04	-498.	468.
65.	4.30E+04	-51.3	8.12E+04	209.	8.07E+04	-659.	579.

Table M-828. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	110.	-0.738	221.	-0.157	221.	-22.1	22.2
15.	991.	-6.69	1.99E+03	-1.34	1.99E+03	-66.2	66.6
30.	3.96E+03	-26.7	7.96E+03	-5.27	7.96E+03	-132.	133.
45.	8.92E+03	-59.9	1.79E+04	-11.8	1.79E+04	-198.	200.
65.	1.86E+04	-125.	3.73E+04	-24.5	3.74E+04	-287.	289.

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Table M-829. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	110.	-0.852	221.	-0.243	221.	-22.1	22.2
15.	991.	-7.62	1.99E+03	-2.23	1.99E+03	-66.2	66.5
30.	3.96E+03	-30.4	7.96E+03	-8.99	7.96E+03	-132.	133.
45.	8.92E+03	-68.4	1.79E+04	-20.3	1.79E+04	-199.	200.
65.	1.86E+04	-143.	3.74E+04	-42.5	3.74E+04	-287.	288.

Table M-830. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	63.8	-536.	888.	-482.	793.	-109.	146.
15.	571.	-5.14E+03	8.57E+03	-4.90E+03	6.53E+03	-365.	398.
30.	2.67E+03	-2.46E+04	3.42E+04	-2.17E+04	3.21E+04	-811.	981.
45.	7.26E+03	-5.21E+04	8.71E+04	-5.01E+04	7.80E+04	-1.27E+03	1.57E+03
65.	1.70E+04	-8.92E+04	1.73E+05	-8.78E+04	1.47E+05	-1.61E+03	1.99E+03

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Table M-831. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-832. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-51.2	-3.18E+03	3.97E+03	-1.57E+03	1.38E+03	-303.	286.
15.	-222.	-2.08E+04	2.05E+04	-8.64E+03	8.91E+03	-561.	609.
30.	-372.	-5.13E+04	6.33E+04	-3.17E+04	3.71E+04	-1.04E+03	1.25E+03
45.	-698.	-1.12E+05	1.63E+05	-7.00E+04	8.59E+04	-1.54E+03	1.92E+03
65.	2.34E+03	-2.40E+05	4.01E+05	-1.55E+05	2.37E+05	-2.42E+03	3.60E+03

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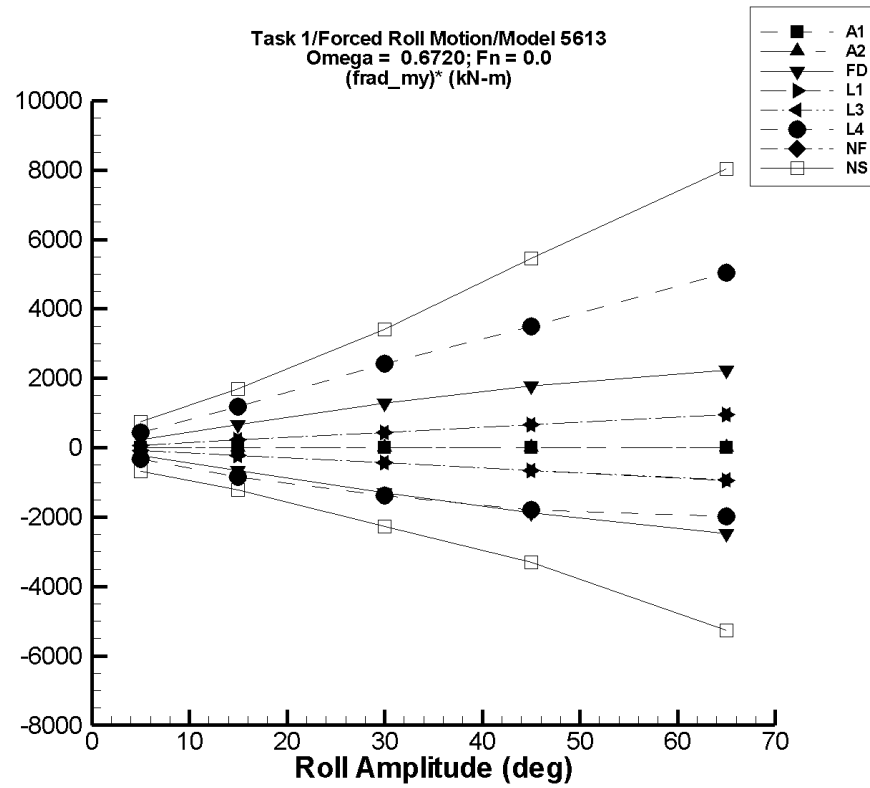


Figure M-105. Minimum and Maximum of  $(M_y^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M-833. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.72E-04	-4.77E-02	4.61E-02	-4.63E-02	4.55E-02	-9.19E-03	9.18E-03
15.	-1.12E-03	-0.143	0.138	-0.139	0.136	-9.19E-03	9.17E-03
30.	-2.23E-03	-0.286	0.277	-0.278	0.273	-9.19E-03	9.17E-03
45.	-3.35E-03	-0.429	0.415	-0.417	0.409	-9.19E-03	9.17E-03
65.	-4.83E-03	-0.620	0.600	-0.602	0.591	-9.19E-03	9.17E-03

Table M-834. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.72E-04	-4.77E-02	4.61E-02	-4.63E-02	4.55E-02	-9.19E-03	9.18E-03
15.	-1.12E-03	-0.143	0.138	-0.139	0.136	-9.19E-03	9.17E-03
30.	-2.23E-03	-0.286	0.277	-0.278	0.273	-9.19E-03	9.17E-03
45.	-3.35E-03	-0.429	0.415	-0.417	0.409	-9.19E-03	9.17E-03
65.	-4.83E-03	-0.620	0.600	-0.602	0.591	-9.19E-03	9.17E-03

Table M-835. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.08E+03	-47.4	2.21E+03	-40.8	2.20E+03	-224.	225.
15.	9.64E+03	-426.	1.96E+04	-366.	1.96E+04	-667.	666.
30.	3.76E+04	-1.70E+03	7.60E+04	-1.45E+03	7.59E+04	-1.30E+03	1.28E+03
45.	8.08E+04	-3.83E+03	1.61E+05	-3.20E+03	1.61E+05	-1.87E+03	1.79E+03
65.	1.54E+05	-7.96E+03	3.00E+05	-6.42E+03	2.99E+05	-2.47E+03	2.23E+03

Table M-836. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	341.	-26.9	708.	-21.0	709.	-72.3	73.6
15.	3.07E+03	-241.	6.37E+03	-189.	6.38E+03	-217.	221.
30.	1.23E+04	-966.	2.55E+04	-757.	2.55E+04	-434.	442.
45.	2.76E+04	-2.17E+03	5.74E+04	-1.70E+03	5.74E+04	-651.	662.
65.	5.76E+04	-4.54E+03	1.20E+05	-3.56E+03	1.20E+05	-941.	957.



Table M-837. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	341.	-25.5	707.	-19.8	708.	-72.1	73.4
15.	3.07E+03	-229.	6.36E+03	-179.	6.37E+03	-216.	220.
30.	1.23E+04	-918.	2.54E+04	-716.	2.55E+04	-433.	440.
45.	2.76E+04	-2.07E+03	5.73E+04	-1.61E+03	5.73E+04	-649.	660.
65.	5.76E+04	-4.31E+03	1.19E+05	-3.36E+03	1.20E+05	-938.	954.

Table M-838. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	229.	-1.52E+03	2.82E+03	-1.45E+03	2.39E+03	-335.	433.
15.	1.54E+03	-1.14E+04	2.14E+04	-1.11E+04	1.94E+04	-843.	1.19E+03
30.	5.86E+03	-4.77E+04	9.44E+04	-3.55E+04	7.84E+04	-1.38E+03	2.42E+03
45.	1.29E+04	-8.76E+04	2.17E+05	-6.81E+04	1.70E+05	-1.80E+03	3.50E+03
65.	2.90E+04	-1.17E+05	4.45E+05	-9.93E+04	3.57E+05	-1.97E+03	5.04E+03

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Table M-839. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-840. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-279.	-7.20E+03	8.93E+03	-3.65E+03	3.40E+03	-674.	737.
15.	-1.78E+03	-4.76E+04	3.74E+04	-2.02E+04	2.36E+04	-1.23E+03	1.69E+03
30.	-5.03E+03	-1.15E+05	1.32E+05	-7.32E+04	9.73E+04	-2.27E+03	3.41E+03
45.	-1.02E+04	-2.50E+05	4.39E+05	-1.58E+05	2.35E+05	-3.30E+03	5.46E+03
65.	-9.75E+03	-5.74E+05	1.10E+06	-3.52E+05	5.12E+05	-5.27E+03	8.02E+03

# TASK 1/ROLL MOTION/MODEL 5613

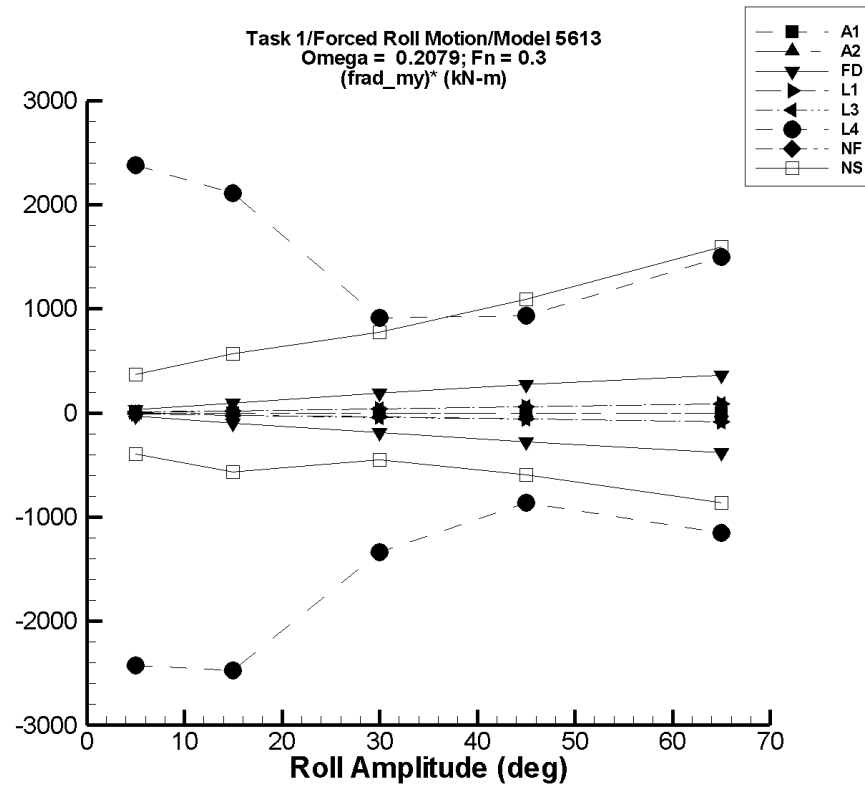


Figure M-106. Minimum and Maximum of  $(M_y^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

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Table M-841. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-6.30E-05	-0.358	0.360	-0.358	0.359	-7.16E-02	7.18E-02
15.	-1.89E-04	-1.07	1.08	-1.07	1.08	-7.16E-02	7.18E-02
30.	-3.78E-04	-2.15	2.16	-2.15	2.15	-7.16E-02	7.18E-02
45.	-5.67E-04	-3.22	3.23	-3.22	3.23	-7.16E-02	7.18E-02
65.	-8.19E-04	-4.66	4.67	-4.65	4.67	-7.16E-02	7.18E-02

Table M-842. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-6.30E-05	-0.358	0.360	-0.358	0.359	-7.16E-02	7.18E-02
15.	-1.89E-04	-1.07	1.08	-1.07	1.08	-7.16E-02	7.18E-02
30.	-3.78E-04	-2.15	2.16	-2.15	2.15	-7.16E-02	7.18E-02
45.	-5.67E-04	-3.22	3.23	-3.22	3.23	-7.16E-02	7.18E-02
65.	-8.19E-04	-4.66	4.67	-4.65	4.67	-7.16E-02	7.18E-02

Table M-843. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	82.8	-79.8	245.	-79.1	245.	-32.4	32.4
15.	739.	-716.	2.19E+03	-710.	2.18E+03	-96.6	96.4
30.	2.88E+03	-2.84E+03	8.54E+03	-2.82E+03	8.52E+03	-190.	188.
45.	6.21E+03	-6.30E+03	1.84E+04	-6.25E+03	1.84E+04	-277.	270.
65.	1.19E+04	-1.28E+04	3.54E+04	-1.27E+04	3.53E+04	-378.	360.

Table M-844. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.07E+04	-1.07E+04	-1.06E+04	-1.07E+04	-1.06E+04	-6.78	6.83
15.	-1.04E+04	-1.07E+04	-1.01E+04	-1.07E+04	-1.01E+04	-20.1	20.1
30.	-9.49E+03	-1.07E+04	-8.28E+03	-1.07E+04	-8.28E+03	-40.2	40.2
45.	-7.98E+03	-1.07E+04	-5.26E+03	-1.07E+04	-5.26E+03	-60.3	60.3
65.	-5.02E+03	-1.07E+04	648.	-1.07E+04	641.	-87.0	87.1

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Table M-845. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.07E+04	-1.07E+04	-1.06E+04	-1.07E+04	-1.06E+04	-8.46	8.70
15.	-1.04E+04	-1.07E+04	-1.01E+04	-1.07E+04	-1.01E+04	-20.4	20.7
30.	-9.49E+03	-1.07E+04	-8.28E+03	-1.07E+04	-8.28E+03	-40.3	40.5
45.	-7.98E+03	-1.07E+04	-5.26E+03	-1.07E+04	-5.26E+03	-60.4	60.5
65.	-5.03E+03	-1.07E+04	649.	-1.07E+04	643.	-87.1	87.3

Table M-846. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.72E+04	-3.22E+04	1.04E+04	-2.93E+04	-5.26E+03	-2.42E+03	2.38E+03
15.	-2.40E+04	-6.69E+04	3.23E+04	-6.11E+04	7.74E+03	-2.48E+03	2.11E+03
30.	-2.72E+04	-8.79E+04	3.23E+04	-6.73E+04	228.	-1.33E+03	916.
45.	-2.57E+04	-7.74E+04	4.80E+04	-6.45E+04	1.64E+04	-862.	935.
65.	-1.88E+04	-1.41E+05	1.11E+05	-9.35E+04	7.84E+04	-1.15E+03	1.49E+03

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Table M-847. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-848. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	149.	-2.36E+03	2.73E+03	-1.83E+03	2.01E+03	-395.	373.
15.	622.	-1.60E+04	1.57E+04	-7.91E+03	9.14E+03	-569.	568.
30.	1.33E+03	-2.91E+04	3.82E+04	-1.22E+04	2.45E+04	-451.	772.
45.	1.36E+03	-4.98E+04	8.80E+04	-2.55E+04	5.06E+04	-596.	1.09E+03
65.	213.	-1.18E+05	1.94E+05	-5.58E+04	1.04E+05	-861.	1.59E+03

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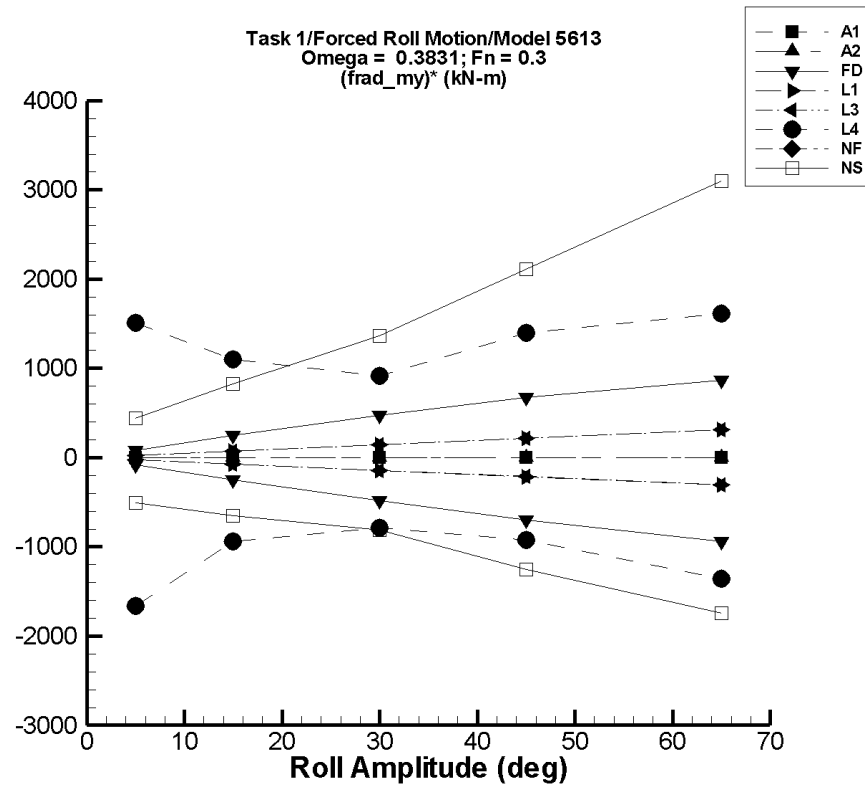


Figure M-107. Minimum and Maximum of  $(M_y^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.



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Table M-849. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.12E-04	-0.725	0.730	-0.722	0.730	-0.144	0.146
15.	9.37E-04	-2.17	2.19	-2.16	2.19	-0.144	0.146
30.	1.87E-03	-4.35	4.38	-4.33	4.38	-0.144	0.146
45.	2.81E-03	-6.52	6.57	-6.49	6.57	-0.144	0.146
65.	4.06E-03	-9.42	9.49	-9.38	9.49	-0.144	0.146

Table M-850. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
(°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.12E-04	-0.725	0.730	-0.722	0.730	-0.144	0.146
15.	9.37E-04	-2.17	2.19	-2.16	2.19	-0.144	0.146
30.	1.87E-03	-4.35	4.38	-4.33	4.38	-0.144	0.146
45.	2.81E-03	-6.52	6.57	-6.49	6.57	-0.144	0.146
65.	-2.13E-03	-9.50	9.77	-9.46	9.42	-0.146	0.145

Table M-851. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	<b>Unfiltered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>(M_y^{\text{rad}})^*</math></b>	
	<b>Mean (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m/°)</b>	<b>Max. (kN-m/°)</b>
5.	320.	-98.7	739.	-92.5	733.	-82.5	82.5
15.	2.86E+03	-887.	6.59E+03	-831.	6.54E+03	-246.	245.
30.	1.12E+04	-3.53E+03	2.56E+04	-3.31E+03	2.54E+04	-482.	474.
45.	2.41E+04	-7.90E+03	5.47E+04	-7.40E+03	5.43E+04	-699.	671.
65.	4.61E+04	-1.63E+04	1.03E+05	-1.52E+04	1.03E+05	-943.	868.

Table M-852. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	<b>Unfiltered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>M_y^{\text{rad}}</math></b>		<b>Filtered <math>(M_y^{\text{rad}})^*</math></b>	
	<b>Mean (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m)</b>	<b>Max. (kN-m)</b>	<b>Min. (kN-m/°)</b>	<b>Max. (kN-m/°)</b>
5.	-1.06E+04	-1.07E+04	-1.05E+04	-1.07E+04	-1.05E+04	-23.8	23.8
15.	-9.63E+03	-1.07E+04	-8.55E+03	-1.07E+04	-8.56E+03	-71.2	71.5
30.	-6.42E+03	-1.07E+04	-2.12E+03	-1.07E+04	-2.13E+03	-142.	143.
45.	-1.07E+03	-1.07E+04	8.59E+03	-1.07E+04	8.59E+03	-214.	215.
65.	9.39E+03	-1.08E+04	2.95E+04	-1.07E+04	2.95E+04	-308.	310.

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Table M-853. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.06E+04	-1.07E+04	-1.05E+04	-1.07E+04	-1.05E+04	-24.3	25.5
15.	-9.63E+03	-1.07E+04	-8.55E+03	-1.07E+04	-8.56E+03	-71.2	71.6
30.	-6.42E+03	-1.07E+04	-2.13E+03	-1.07E+04	-2.13E+03	-142.	143.
45.	-1.07E+03	-1.07E+04	8.57E+03	-1.07E+04	8.58E+03	-213.	215.
65.	9.39E+03	-1.07E+04	2.95E+04	-1.06E+04	2.95E+04	-308.	310.

Table M-854. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.72E+04	-3.23E+04	-6.52E+03	-2.55E+04	-9.63E+03	-1.66E+03	1.51E+03
15.	-2.28E+04	-3.90E+04	1.31E+04	-3.70E+04	-6.36E+03	-943.	1.10E+03
30.	-2.33E+04	-4.79E+04	1.74E+04	-4.70E+04	4.18E+03	-788.	917.
45.	-1.82E+04	-6.23E+04	6.17E+04	-5.97E+04	4.47E+04	-923.	1.40E+03
65.	-16.0	-1.24E+05	1.28E+05	-8.81E+04	1.05E+05	-1.36E+03	1.62E+03

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Table M-855. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-856. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	208.	-4.43E+03	4.22E+03	-2.34E+03	2.42E+03	-509.	442.
15.	845.	-2.87E+04	2.75E+04	-8.96E+03	1.33E+04	-653.	830.
30.	1.31E+03	-5.10E+04	7.29E+04	-2.30E+04	4.22E+04	-809.	1.36E+03
45.	-76.6	-1.01E+05	1.80E+05	-5.65E+04	9.49E+04	-1.25E+03	2.11E+03
65.	-3.41E+03	-2.61E+05	4.06E+05	-1.17E+05	1.98E+05	-1.75E+03	3.10E+03

# TASK 1/ROLL MOTION/MODEL 5613

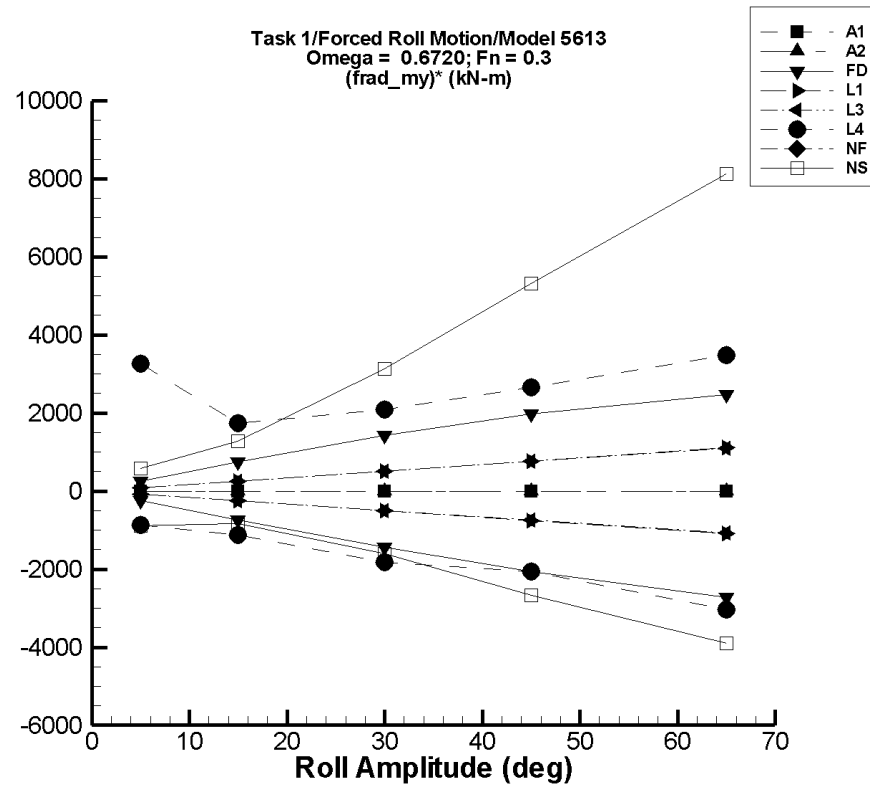


Figure M-108. Minimum and Maximum of  $(M_y^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

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Table M-857. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.71E-04	-1.27	1.26	-1.22	1.22	-0.244	0.243
15.	-5.12E-04	-3.80	3.77	-3.65	3.65	-0.243	0.243
30.	-1.02E-03	-7.60	7.54	-7.31	7.30	-0.243	0.243
45.	-1.54E-03	-11.4	11.3	-11.0	11.0	-0.243	0.243
65.	-2.22E-03	-16.5	16.3	-15.8	15.8	-0.243	0.243

Table M-858. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.71E-04	-1.27	1.26	-1.22	1.22	-0.244	0.243
15.	-5.12E-04	-3.80	3.77	-3.65	3.65	-0.243	0.243
30.	-1.02E-03	-7.60	7.54	-7.31	7.30	-0.243	0.243
45.	-1.54E-03	-11.4	11.3	-11.0	11.0	-0.243	0.243
65.	-2.22E-03	-16.5	16.3	-15.8	15.8	-0.243	0.243

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Table M-859. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.30E+03	-11.8	2.60E+03	48.0	2.54E+03	-249.	249.
15.	1.16E+04	-106.	2.32E+04	432.	2.27E+04	-742.	739.
30.	4.51E+04	-425.	8.96E+04	1.73E+03	8.76E+04	-1.45E+03	1.42E+03
45.	9.71E+04	-955.	1.90E+05	3.89E+03	1.86E+05	-2.07E+03	1.98E+03
65.	1.85E+05	-1.99E+03	3.52E+05	8.12E+03	3.46E+05	-2.73E+03	2.47E+03

Table M-860. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.03E+04	-1.08E+04	-9.91E+03	-1.08E+04	-9.91E+03	-83.9	85.2
15.	-7.47E+03	-1.13E+04	-3.63E+03	-1.12E+04	-3.63E+03	-252.	256.
30.	2.20E+03	-1.31E+04	1.76E+04	-1.29E+04	1.76E+04	-504.	512.
45.	1.83E+04	-1.62E+04	5.29E+04	-1.57E+04	5.29E+04	-755.	768.
65.	4.99E+04	-2.22E+04	1.22E+05	-2.10E+04	1.22E+05	-1.09E+03	1.11E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-861. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.03E+04	-1.08E+04	-9.90E+03	-1.08E+04	-9.91E+03	-84.4	84.7
15.	-7.47E+03	-1.13E+04	-3.66E+03	-1.12E+04	-3.67E+03	-250.	254.
30.	2.21E+03	-1.30E+04	1.74E+04	-1.28E+04	1.74E+04	-499.	508.
45.	1.83E+04	-1.59E+04	5.25E+04	-1.53E+04	5.26E+04	-748.	762.
65.	4.99E+04	-2.15E+04	1.21E+05	-2.04E+04	1.21E+05	-1.08E+03	1.10E+03

Table M-862. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.69E+04	-3.07E+04	2.28E+04	-2.12E+04	-565.	-864.	3.26E+03
15.	-2.21E+04	-4.09E+04	2.65E+04	-3.89E+04	3.87E+03	-1.12E+03	1.73E+03
30.	-1.81E+04	-7.61E+04	6.26E+04	-7.27E+04	4.47E+04	-1.82E+03	2.09E+03
45.	-4.81E+03	-1.04E+05	1.42E+05	-9.73E+04	1.14E+05	-2.06E+03	2.65E+03
65.	2.02E+04	-1.98E+05	2.92E+05	-1.77E+05	2.47E+05	-3.04E+03	3.49E+03



TASK 1/ROLL MOTION/MODEL 5613

Table M-863. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-864. Minimum and Maximum of  $M_y^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_y^{\text{rad}} \rangle$	Unfiltered $M_y^{\text{rad}}$		Filtered $M_y^{\text{rad}}$		Filtered $(M_y^{\text{rad}})^*$	
	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	51.7	-8.46E+03	8.82E+03	-4.40E+03	2.97E+03	-890.	584.
15.	-396.	-5.31E+04	4.00E+04	-1.29E+04	1.87E+04	-834.	1.27E+03
30.	-3.37E+03	-9.38E+04	1.28E+05	-5.17E+04	9.05E+04	-1.61E+03	3.13E+03
45.	-1.29E+04	-2.16E+05	4.07E+05	-1.33E+05	2.26E+05	-2.68E+03	5.31E+03
65.	-2.32E+04	-5.56E+05	1.06E+06	-2.77E+05	5.05E+05	-3.90E+03	8.13E+03

# TASK 1/ROLL MOTION/MODEL 5613

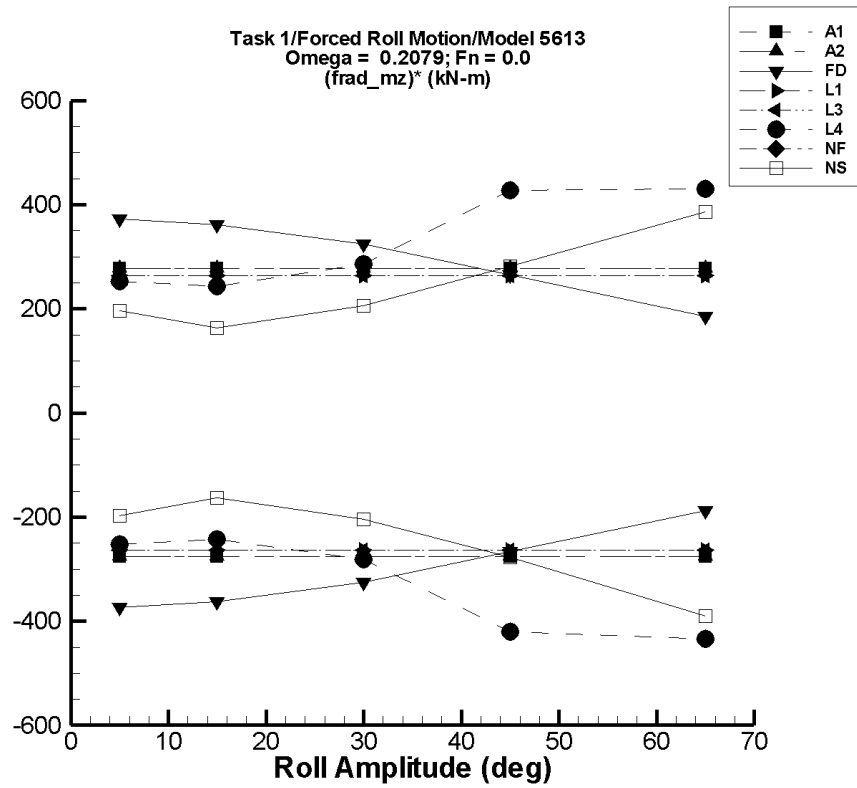


Figure M-109. Minimum and Maximum of  $(M_z^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.0.

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Table M-865. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.29	-1.49E+03	1.49E+03	-1.38E+03	1.39E+03	-276.	278.
15.	-6.86	-4.46E+03	4.46E+03	-4.14E+03	4.15E+03	-276.	277.
30.	-13.7	-8.91E+03	8.92E+03	-8.28E+03	8.31E+03	-276.	277.
45.	-20.6	-1.34E+04	1.34E+04	-1.24E+04	1.25E+04	-276.	277.
65.	-29.8	-1.93E+04	1.93E+04	-1.79E+04	1.80E+04	-276.	277.

Table M-866. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.29	-1.49E+03	1.49E+03	-1.38E+03	1.39E+03	-276.	278.
15.	-6.86	-4.46E+03	4.46E+03	-4.14E+03	4.15E+03	-276.	277.
30.	-13.7	-8.91E+03	8.92E+03	-8.28E+03	8.31E+03	-276.	277.
45.	-20.6	-1.34E+04	1.34E+04	-1.24E+04	1.25E+04	-276.	277.
65.	-29.8	-1.93E+04	1.93E+04	-1.79E+04	1.80E+04	-276.	277.

Table M-867. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	5.27E-02	-1.87E+03	1.87E+03	-1.87E+03	1.87E+03	-373.	373.
15.	1.41	-5.43E+03	5.43E+03	-5.43E+03	5.43E+03	-362.	362.
30.	11.1	-9.74E+03	9.74E+03	-9.73E+03	9.73E+03	-325.	324.
45.	36.3	-1.19E+04	1.19E+04	-1.19E+04	1.20E+04	-266.	265.
65.	103.	-1.22E+04	1.22E+04	-1.21E+04	1.21E+04	-188.	185.

Table M-868. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.18E-03	-1.32E+03	1.32E+03	-1.32E+03	1.32E+03	-263.	263.
15.	-7.37E-03	-3.95E+03	3.95E+03	-3.95E+03	3.95E+03	-263.	263.
30.	-2.38E-02	-7.91E+03	7.91E+03	-7.90E+03	7.90E+03	-263.	263.
45.	-4.35E-02	-1.19E+04	1.19E+04	-1.19E+04	1.19E+04	-263.	263.
65.	-9.63E-02	-1.71E+04	1.71E+04	-1.71E+04	1.71E+04	-263.	263.

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Table M-869. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.26E-03	-1.32E+03	1.32E+03	-1.32E+03	1.32E+03	-263.	263.
15.	-6.86E-03	-3.95E+03	3.95E+03	-3.95E+03	3.95E+03	-263.	263.
30.	-2.46E-02	-7.91E+03	7.91E+03	-7.90E+03	7.90E+03	-263.	263.
45.	-4.37E-02	-1.19E+04	1.19E+04	-1.19E+04	1.19E+04	-263.	263.
65.	-9.56E-02	-1.71E+04	1.71E+04	-1.71E+04	1.71E+04	-263.	263.

Table M-870. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.359	-1.27E+03	1.28E+03	-1.26E+03	1.26E+03	-253.	253.
15.	-2.24	-3.65E+03	3.65E+03	-3.65E+03	3.65E+03	-243.	244.
30.	-36.2	-8.52E+03	8.72E+03	-8.47E+03	8.55E+03	-281.	286.
45.	-174.	-1.95E+04	1.97E+04	-1.91E+04	1.91E+04	-421.	428.
65.	-41.2	-3.21E+04	3.57E+04	-2.82E+04	2.80E+04	-434.	431.

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Table M-871. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-872. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-9.83E-03	-992.	992.	-985.	985.	-197.	197.
15.	-2.81E-02	-3.28E+03	3.28E+03	-2.45E+03	2.44E+03	-163.	163.
30.	-2.81E-02	-1.07E+04	1.07E+04	-6.13E+03	6.17E+03	-204.	206.
45.	2.33	-2.73E+04	2.88E+04	-1.25E+04	1.27E+04	-277.	281.
65.	50.8	-6.64E+04	6.28E+04	-2.53E+04	2.52E+04	-390.	387.

# TASK 1/ROLL MOTION/MODEL 5613

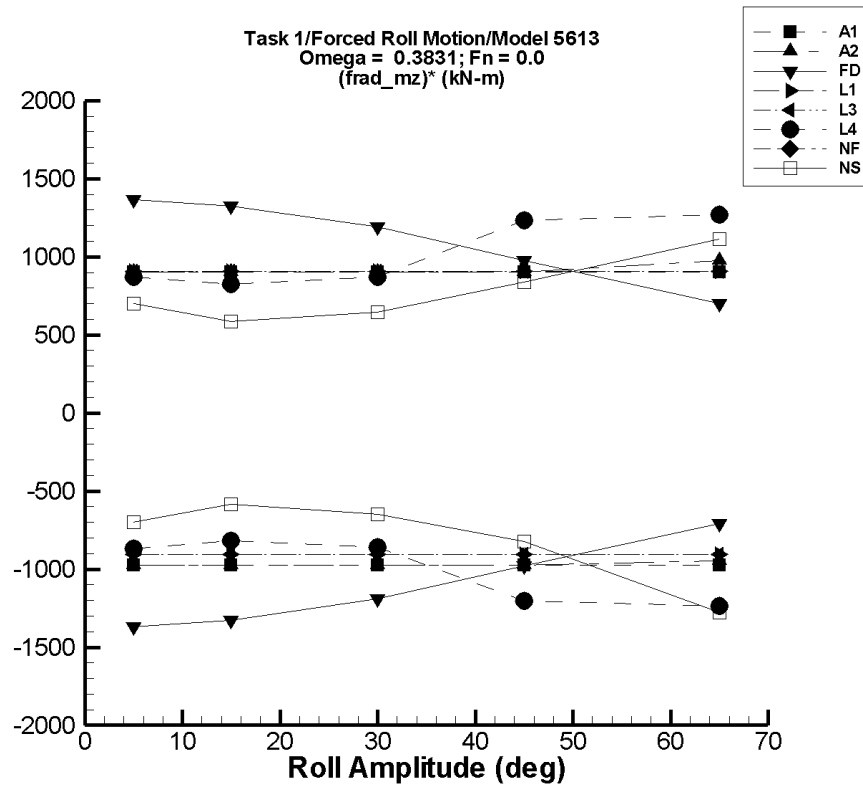


Figure M-110. Minimum and Maximum of  $(M_z^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M-873. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-11.0	-4.93E+03	4.74E+03	-4.89E+03	4.49E+03	-976.	901.
15.	-33.1	-1.48E+04	1.42E+04	-1.47E+04	1.35E+04	-975.	901.
30.	-66.2	-2.96E+04	2.85E+04	-2.93E+04	2.70E+04	-975.	901.
45.	-99.2	-4.43E+04	4.27E+04	-4.40E+04	4.04E+04	-975.	901.
65.	-143.	-6.40E+04	6.17E+04	-6.35E+04	5.84E+04	-975.	901.

Table M-874. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-11.0	-4.93E+03	4.74E+03	-4.89E+03	4.49E+03	-976.	901.
15.	-33.1	-1.48E+04	1.42E+04	-1.47E+04	1.35E+04	-975.	901.
30.	-66.2	-2.96E+04	2.85E+04	-2.93E+04	2.70E+04	-975.	901.
45.	-99.2	-4.43E+04	4.27E+04	-4.40E+04	4.04E+04	-975.	901.
65.	-51.1	-6.19E+04	6.39E+04	-6.15E+04	6.34E+04	-945.	977.



TASK 1/ROLL MOTION/MODEL 5613

Table M-875. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.183	-6.86E+03	6.86E+03	-6.84E+03	6.84E+03	-1.37E+03	1.37E+03
15.	4.89	-2.00E+04	2.00E+04	-1.99E+04	1.99E+04	-1.33E+03	1.33E+03
30.	38.3	-3.58E+04	3.58E+04	-3.57E+04	3.57E+04	-1.19E+03	1.19E+03
45.	124.	-4.40E+04	4.40E+04	-4.40E+04	4.40E+04	-980.	974.
65.	348.	-4.61E+04	4.61E+04	-4.57E+04	4.58E+04	-709.	699.

Table M-876. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-5.79E-02	-4.54E+03	4.54E+03	-4.53E+03	4.54E+03	-907.	907.
15.	-0.187	-1.36E+04	1.36E+04	-1.36E+04	1.36E+04	-907.	907.
30.	-0.406	-2.72E+04	2.72E+04	-2.72E+04	2.72E+04	-907.	907.
45.	-0.652	-4.09E+04	4.09E+04	-4.08E+04	4.08E+04	-907.	907.
65.	-1.06	-5.90E+04	5.90E+04	-5.90E+04	5.90E+04	-907.	907.

Table M-877. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-6.08E-02	-4.54E+03	4.54E+03	-4.53E+03	4.54E+03	-907.	907.
15.	-0.193	-1.36E+04	1.36E+04	-1.36E+04	1.36E+04	-907.	907.
30.	-0.418	-2.72E+04	2.72E+04	-2.72E+04	2.72E+04	-907.	907.
45.	-0.673	-4.09E+04	4.09E+04	-4.08E+04	4.08E+04	-907.	907.
65.	-1.08	-5.90E+04	5.90E+04	-5.90E+04	5.90E+04	-907.	907.

Table M-878. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.02	-4.36E+03	4.40E+03	-4.34E+03	4.34E+03	-868.	869.
15.	-38.9	-1.23E+04	1.23E+04	-1.23E+04	1.23E+04	-818.	823.
30.	-216.	-2.62E+04	2.67E+04	-2.60E+04	2.59E+04	-859.	871.
45.	-922.	-5.58E+04	5.63E+04	-5.51E+04	5.46E+04	-1.20E+03	1.23E+03
65.	-1.60E+03	-9.53E+04	9.94E+04	-8.19E+04	8.10E+04	-1.24E+03	1.27E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-879. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-880. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.62E-02	-3.52E+03	3.53E+03	-3.49E+03	3.50E+03	-698.	700.
15.	0.200	-1.13E+04	1.13E+04	-8.78E+03	8.80E+03	-585.	586.
30.	0.700	-3.42E+04	3.41E+04	-1.95E+04	1.94E+04	-648.	647.
45.	10.0	-9.24E+04	9.16E+04	-3.71E+04	3.76E+04	-824.	836.
65.	35.9	-2.10E+05	2.23E+05	-8.29E+04	7.23E+04	-1.28E+03	1.11E+03

# TASK 1/ROLL MOTION/MODEL 5613

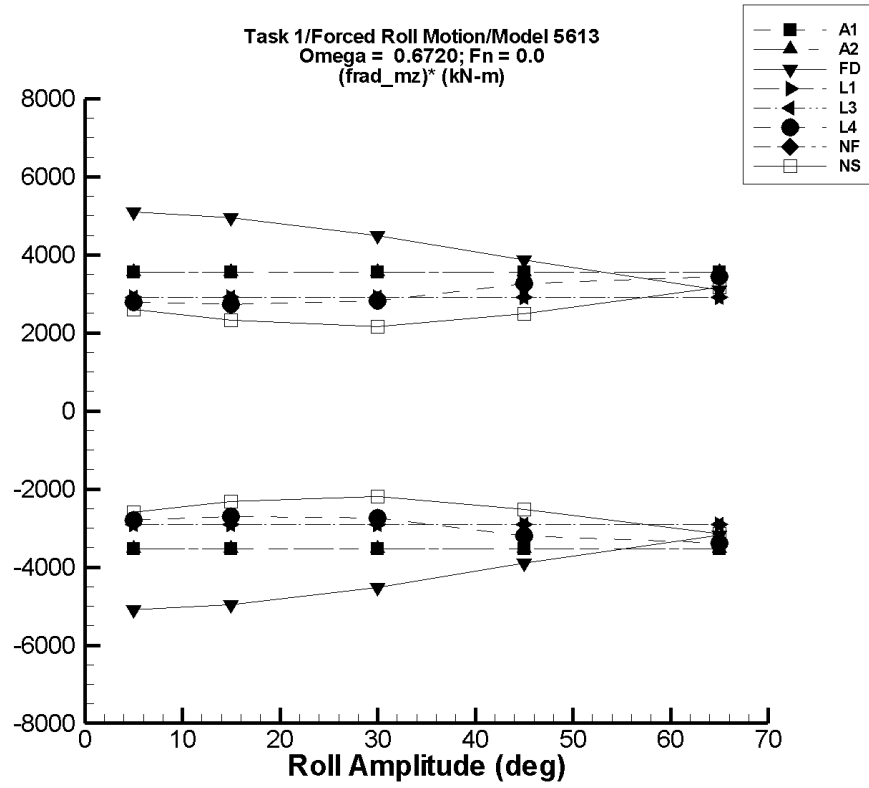


Figure M-111. Minimum and Maximum of  $(M_z^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M-881. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-22.8	-1.79E+04	1.80E+04	-1.76E+04	1.78E+04	-3.52E+03	3.56E+03
15.	-68.4	-5.35E+04	5.39E+04	-5.29E+04	5.32E+04	-3.52E+03	3.55E+03
30.	-137.	-1.07E+05	1.08E+05	-1.06E+05	1.06E+05	-3.52E+03	3.55E+03
45.	-205.	-1.61E+05	1.62E+05	-1.59E+05	1.60E+05	-3.52E+03	3.55E+03
65.	-297.	-2.32E+05	2.34E+05	-2.29E+05	2.31E+05	-3.52E+03	3.55E+03

Table M-882. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-22.8	-1.79E+04	1.80E+04	-1.76E+04	1.78E+04	-3.52E+03	3.56E+03
15.	-68.4	-5.35E+04	5.39E+04	-5.29E+04	5.32E+04	-3.52E+03	3.55E+03
30.	-137.	-1.07E+05	1.08E+05	-1.06E+05	1.06E+05	-3.52E+03	3.55E+03
45.	-205.	-1.61E+05	1.62E+05	-1.59E+05	1.60E+05	-3.52E+03	3.55E+03
65.	-297.	-2.32E+05	2.34E+05	-2.29E+05	2.31E+05	-3.52E+03	3.55E+03

Table M-883. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

<b>FREDYN</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	1.50	-2.58E+04	2.58E+04	-2.55E+04	2.55E+04	-5.09E+03	5.09E+03
15.	41.3	-7.51E+04	7.51E+04	-7.43E+04	7.43E+04	-4.96E+03	4.95E+03
30.	324.	-1.37E+05	1.37E+05	-1.35E+05	1.35E+05	-4.52E+03	4.50E+03
45.	1.05E+03	-1.77E+05	1.77E+05	-1.75E+05	1.75E+05	-3.91E+03	3.86E+03
65.	2.94E+03	-2.10E+05	2.10E+05	-2.04E+05	2.04E+05	-3.19E+03	3.10E+03

Table M-884. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

<b>LAMP-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.223	-1.46E+04	1.46E+04	-1.45E+04	1.45E+04	-2.90E+03	2.90E+03
15.	-0.711	-4.37E+04	4.37E+04	-4.36E+04	4.36E+04	-2.90E+03	2.90E+03
30.	-1.55	-8.75E+04	8.75E+04	-8.71E+04	8.71E+04	-2.90E+03	2.90E+03
45.	-2.54	-1.31E+05	1.31E+05	-1.31E+05	1.31E+05	-2.90E+03	2.90E+03
65.	-4.03	-1.90E+05	1.90E+05	-1.89E+05	1.89E+05	-2.90E+03	2.90E+03

Table M-885. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.225	-1.46E+04	1.46E+04	-1.45E+04	1.45E+04	-2.90E+03	2.90E+03
15.	-0.728	-4.37E+04	4.37E+04	-4.35E+04	4.35E+04	-2.90E+03	2.90E+03
30.	-1.58	-8.75E+04	8.75E+04	-8.71E+04	8.71E+04	-2.90E+03	2.90E+03
45.	-2.58	-1.31E+05	1.31E+05	-1.31E+05	1.31E+05	-2.90E+03	2.90E+03
65.	-4.04	-1.89E+05	1.89E+05	-1.89E+05	1.89E+05	-2.90E+03	2.90E+03

Table M-886. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-55.3	-1.42E+04	1.42E+04	-1.40E+04	1.39E+04	-2.79E+03	2.78E+03
15.	-348.	-4.10E+04	4.10E+04	-4.08E+04	4.07E+04	-2.70E+03	2.74E+03
30.	-1.12E+03	-8.48E+04	8.60E+04	-8.34E+04	8.35E+04	-2.74E+03	2.82E+03
45.	-2.25E+03	-1.49E+05	1.51E+05	-1.47E+05	1.45E+05	-3.21E+03	3.27E+03
65.	-5.42E+03	-2.69E+05	2.59E+05	-2.25E+05	2.18E+05	-3.38E+03	3.44E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-887. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-888. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.853	-1.31E+04	1.32E+04	-1.30E+04	1.30E+04	-2.59E+03	2.60E+03
15.	-3.39	-4.26E+04	4.26E+04	-3.47E+04	3.49E+04	-2.31E+03	2.33E+03
30.	-10.5	-1.12E+05	1.12E+05	-6.55E+04	6.50E+04	-2.18E+03	2.17E+03
45.	16.5	-2.93E+05	2.55E+05	-1.14E+05	1.12E+05	-2.53E+03	2.48E+03
65.	-109.	-6.22E+05	6.40E+05	-2.04E+05	2.06E+05	-3.14E+03	3.18E+03



# TASK 1/ROLL MOTION/MODEL 5613

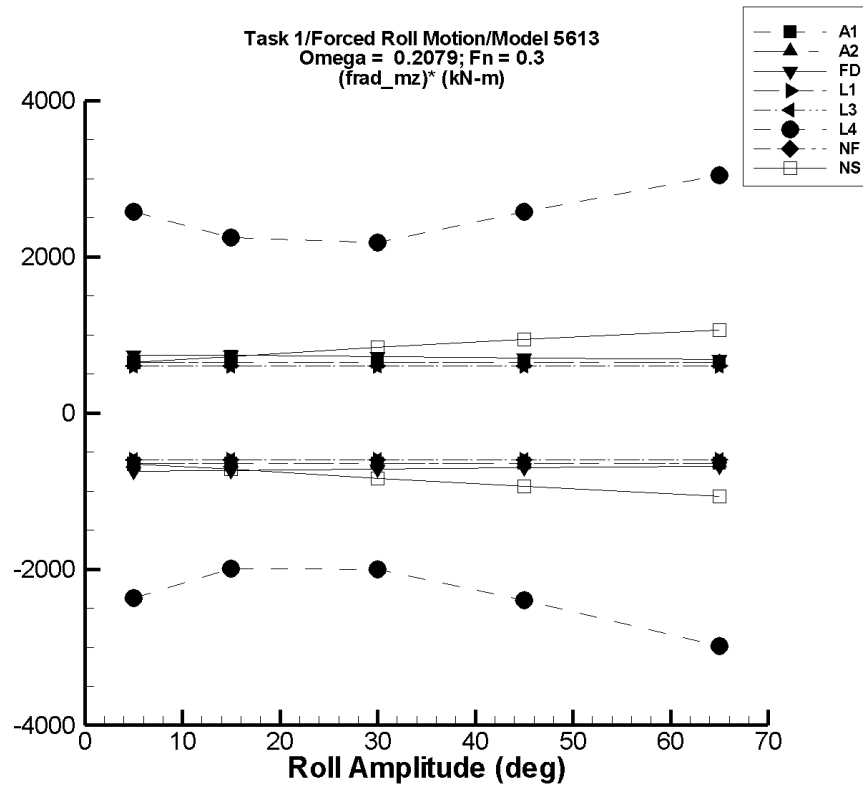


Figure M-112. Minimum and Maximum of  $(M_z^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.2079 rad/sec and Froude number 0.3.

TASK 1/ROLL MOTION/MODEL 5613

Table M-889. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.19	-3.30E+03	3.36E+03	-3.24E+03	3.25E+03	-647.	649.
15.	-3.56	-9.89E+03	1.01E+04	-9.70E+03	9.73E+03	-647.	649.
30.	-7.12	-1.98E+04	2.01E+04	-1.94E+04	1.95E+04	-647.	649.
45.	-10.7	-2.97E+04	3.02E+04	-2.91E+04	2.92E+04	-647.	649.
65.	-15.4	-4.28E+04	4.36E+04	-4.21E+04	4.22E+04	-647.	649.

Table M-890. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.19	-3.30E+03	3.36E+03	-3.24E+03	3.25E+03	-647.	649.
15.	-3.56	-9.89E+03	1.01E+04	-9.70E+03	9.73E+03	-647.	649.
30.	-7.12	-1.98E+04	2.01E+04	-1.94E+04	1.95E+04	-647.	649.
45.	-10.7	-2.97E+04	3.02E+04	-2.91E+04	2.92E+04	-647.	649.
65.	-15.4	-4.28E+04	4.36E+04	-4.21E+04	4.22E+04	-647.	649.

TASK 1/ROLL MOTION/MODEL 5613

Table M-891. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.66E-02	-3.72E+03	3.72E+03	-3.72E+03	3.72E+03	-744.	744.
15.	-0.443	-1.11E+04	1.11E+04	-1.11E+04	1.11E+04	-739.	739.
30.	-3.49	-2.17E+04	2.17E+04	-2.17E+04	2.17E+04	-723.	723.
45.	-11.5	-3.18E+04	3.18E+04	-3.17E+04	3.17E+04	-705.	706.
65.	-33.3	-4.47E+04	4.47E+04	-4.46E+04	4.46E+04	-685.	687.

Table M-892. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered $(M_z^{\text{rad}})^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.78	-3.00E+03	3.00E+03	-3.00E+03	3.00E+03	-600.	600.
15.	-1.78	-9.00E+03	9.00E+03	-9.00E+03	9.00E+03	-600.	600.
30.	-1.79	-1.80E+04	1.80E+04	-1.80E+04	1.80E+04	-600.	600.
45.	-1.79	-2.70E+04	2.70E+04	-2.70E+04	2.70E+04	-600.	600.
65.	-1.88	-3.90E+04	3.90E+04	-3.90E+04	3.90E+04	-600.	600.

TASK 1/ROLL MOTION/MODEL 5613

Table M-893. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.79	-3.00E+03	3.00E+03	-3.00E+03	3.00E+03	-600.	600.
15.	-1.63	-9.00E+03	9.00E+03	-9.00E+03	9.00E+03	-600.	600.
30.	-1.39	-1.80E+04	1.80E+04	-1.80E+04	1.80E+04	-600.	600.
45.	-1.17	-2.70E+04	2.70E+04	-2.70E+04	2.70E+04	-600.	600.
65.	-0.925	-3.90E+04	3.90E+04	-3.90E+04	3.90E+04	-600.	600.

Table M-894. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-565.	-2.26E+04	1.35E+04	-1.24E+04	1.23E+04	-2.37E+03	2.58E+03
15.	-2.12E+03	-5.90E+04	4.25E+04	-3.20E+04	3.15E+04	-1.99E+03	2.24E+03
30.	-3.19E+03	-9.23E+04	7.47E+04	-6.33E+04	6.23E+04	-2.00E+03	2.18E+03
45.	-4.40E+03	-1.15E+05	1.13E+05	-1.12E+05	1.12E+05	-2.40E+03	2.58E+03
65.	-5.85E+03	-2.30E+05	1.99E+05	-2.00E+05	1.92E+05	-2.99E+03	3.05E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-895. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-896. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	9.78E-03	-3.38E+03	3.38E+03	-3.25E+03	3.25E+03	-651.	650.
15.	-4.33E-02	-1.24E+04	1.24E+04	-1.08E+04	1.08E+04	-721.	720.
30.	0.123	-3.05E+04	3.05E+04	-2.52E+04	2.52E+04	-839.	839.
45.	12.5	-5.60E+04	5.97E+04	-4.24E+04	4.26E+04	-942.	946.
65.	17.7	-1.11E+05	1.09E+05	-6.96E+04	6.93E+04	-1.07E+03	1.07E+03

# TASK 1/ROLL MOTION/MODEL 5613

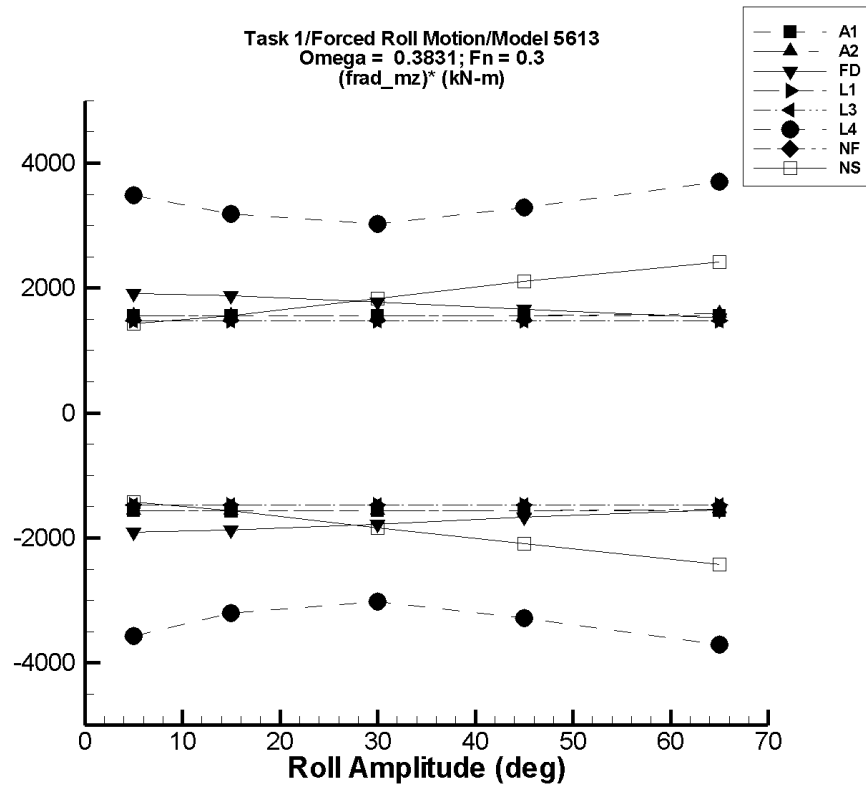


Figure M-113. Minimum and Maximum of  $(M_z^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M-897. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.25	-7.85E+03	8.37E+03	-7.81E+03	7.79E+03	-1.56E+03	1.56E+03
15.	-12.8	-2.35E+04	2.51E+04	-2.34E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-25.5	-4.71E+04	5.02E+04	-4.69E+04	4.67E+04	-1.56E+03	1.56E+03
45.	-38.2	-7.06E+04	7.53E+04	-7.03E+04	7.01E+04	-1.56E+03	1.56E+03
65.	-55.2	-1.02E+05	1.09E+05	-1.02E+05	1.01E+05	-1.56E+03	1.56E+03

Table M-898. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.25	-7.85E+03	8.37E+03	-7.81E+03	7.79E+03	-1.56E+03	1.56E+03
15.	-12.8	-2.35E+04	2.51E+04	-2.34E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-25.5	-4.71E+04	5.02E+04	-4.69E+04	4.67E+04	-1.56E+03	1.56E+03
45.	-38.2	-7.06E+04	7.53E+04	-7.03E+04	7.01E+04	-1.56E+03	1.56E+03
65.	-49.0	-1.10E+05	1.04E+05	-1.00E+05	1.03E+05	-1.54E+03	1.59E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-899. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{rad}})^*$ Max. (kN-m/°)
5.	0.488	-9.59E+03	9.59E+03	-9.55E+03	9.55E+03	-1.91E+03	1.91E+03
15.	13.1	-2.83E+04	2.83E+04	-2.82E+04	2.82E+04	-1.88E+03	1.88E+03
30.	103.	-5.36E+04	5.36E+04	-5.34E+04	5.34E+04	-1.78E+03	1.78E+03
45.	338.	-7.53E+04	7.53E+04	-7.49E+04	7.49E+04	-1.67E+03	1.66E+03
65.	963.	-1.01E+05	1.01E+05	-9.98E+04	9.99E+04	-1.55E+03	1.52E+03

Table M-900. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m)	$M_z^{\text{rad}}$ Max. (kN-m)	Filtered Min. (kN-m/°)	$(M_z^{\text{rad}})^*$ Max. (kN-m/°)
5.	-1.85	-7.38E+03	7.37E+03	-7.37E+03	7.36E+03	-1.47E+03	1.47E+03
15.	-1.89	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	-1.92	-4.43E+04	4.43E+04	-4.42E+04	4.42E+04	-1.47E+03	1.47E+03
45.	-1.97	-6.64E+04	6.64E+04	-6.63E+04	6.63E+04	-1.47E+03	1.47E+03
65.	-2.15	-9.59E+04	9.59E+04	-9.58E+04	9.58E+04	-1.47E+03	1.47E+03



Table M-901. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.78	-7.39E+03	7.39E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	-1.76	-2.22E+04	2.22E+04	-2.21E+04	2.21E+04	-1.48E+03	1.48E+03
30.	-1.68	-4.43E+04	4.43E+04	-4.43E+04	4.43E+04	-1.48E+03	1.48E+03
45.	-1.65	-6.65E+04	6.65E+04	-6.64E+04	6.64E+04	-1.48E+03	1.48E+03
65.	-1.70	-9.61E+04	9.60E+04	-9.59E+04	9.59E+04	-1.48E+03	1.48E+03

Table M-902. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	142.	-1.92E+04	1.90E+04	-1.77E+04	1.76E+04	-3.57E+03	3.49E+03
15.	80.2	-4.96E+04	4.95E+04	-4.80E+04	4.78E+04	-3.20E+03	3.18E+03
30.	114.	-9.14E+04	9.15E+04	-9.07E+04	9.08E+04	-3.03E+03	3.02E+03
45.	-87.9	-1.50E+05	1.50E+05	-1.48E+05	1.48E+05	-3.28E+03	3.28E+03
65.	474.	-2.63E+05	2.65E+05	-2.41E+05	2.41E+05	-3.71E+03	3.71E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-903. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-904. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.82E-02	-7.52E+03	7.52E+03	-7.15E+03	7.14E+03	-1.43E+03	1.43E+03
15.	-0.140	-2.82E+04	2.81E+04	-2.35E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-1.17E-02	-7.14E+04	7.14E+04	-5.52E+04	5.51E+04	-1.84E+03	1.84E+03
45.	27.8	-1.39E+05	1.50E+05	-9.40E+04	9.46E+04	-2.09E+03	2.10E+03
65.	37.8	-2.92E+05	2.85E+05	-1.58E+05	1.57E+05	-2.43E+03	2.42E+03

# Task 1/ROLL MOTION/MODEL 5613

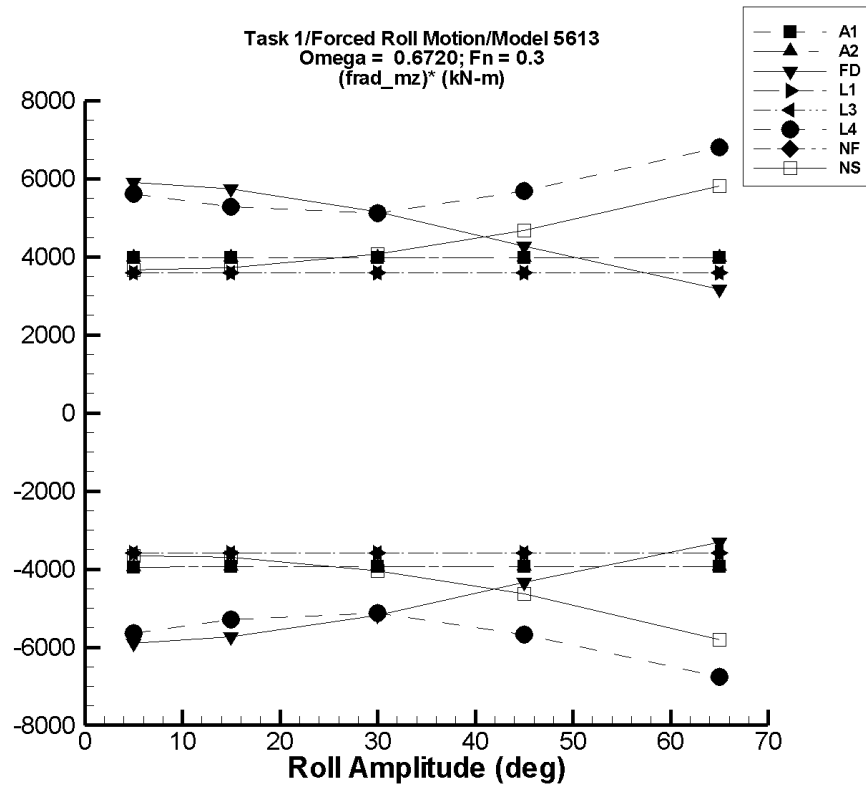


Figure M-114. Minimum and Maximum of  $(M_z^{\text{rad}})^*$  Versus  $\phi_a$  for Prescribed 1-DOF Roll Motion of Model 5613 ( $L = 154$  m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M-905. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

<b>AEGIR-1</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-21.2	-2.00E+04	2.01E+04	-1.97E+04	1.98E+04	-3.94E+03	3.97E+03
15.	-63.5	-5.99E+04	6.03E+04	-5.92E+04	5.95E+04	-3.94E+03	3.97E+03
30.	-127.	-1.20E+05	1.21E+05	-1.18E+05	1.19E+05	-3.94E+03	3.97E+03
45.	-191.	-1.80E+05	1.81E+05	-1.78E+05	1.78E+05	-3.94E+03	3.97E+03
65.	-275.	-2.60E+05	2.61E+05	-2.57E+05	2.58E+05	-3.94E+03	3.97E+03

Table M-906. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

<b>AEGIR-2</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-21.2	-2.00E+04	2.01E+04	-1.97E+04	1.98E+04	-3.94E+03	3.97E+03
15.	-63.5	-5.99E+04	6.03E+04	-5.92E+04	5.95E+04	-3.94E+03	3.97E+03
30.	-127.	-1.20E+05	1.21E+05	-1.18E+05	1.19E+05	-3.94E+03	3.97E+03
45.	-191.	-1.80E+05	1.81E+05	-1.78E+05	1.78E+05	-3.94E+03	3.97E+03
65.	-275.	-2.60E+05	2.61E+05	-2.57E+05	2.58E+05	-3.94E+03	3.97E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-907. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.27	-2.99E+04	2.99E+04	-2.95E+04	2.95E+04	-5.91E+03	5.91E+03
15.	61.7	-8.69E+04	8.69E+04	-8.60E+04	8.60E+04	-5.74E+03	5.73E+03
30.	484.	-1.56E+05	1.56E+05	-1.55E+05	1.55E+05	-5.19E+03	5.16E+03
45.	1.58E+03	-1.95E+05	1.95E+05	-1.94E+05	1.94E+05	-4.34E+03	4.27E+03
65.	4.43E+03	-2.16E+05	2.16E+05	-2.10E+05	2.11E+05	-3.31E+03	3.18E+03

Table M-908. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.90	-1.80E+04	1.80E+04	-1.79E+04	1.79E+04	-3.58E+03	3.58E+03
15.	-1.96	-5.40E+04	5.40E+04	-5.37E+04	5.37E+04	-3.58E+03	3.58E+03
30.	-2.13	-1.08E+05	1.08E+05	-1.07E+05	1.07E+05	-3.58E+03	3.58E+03
45.	-2.40	-1.62E+05	1.62E+05	-1.61E+05	1.61E+05	-3.58E+03	3.58E+03
65.	-2.84	-2.34E+05	2.34E+05	-2.33E+05	2.33E+05	-3.58E+03	3.58E+03

TASK 1/ROLL MOTION/MODEL 5613

Table M-909. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

<b>LAMP-3</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.92	-1.80E+04	1.80E+04	-1.80E+04	1.80E+04	-3.59E+03	3.59E+03
15.	-2.01	-5.41E+04	5.41E+04	-5.39E+04	5.39E+04	-3.59E+03	3.59E+03
30.	-2.25	-1.08E+05	1.08E+05	-1.08E+05	1.08E+05	-3.59E+03	3.59E+03
45.	-2.59	-1.62E+05	1.62E+05	-1.62E+05	1.62E+05	-3.59E+03	3.59E+03
65.	-3.12	-2.34E+05	2.34E+05	-2.33E+05	2.33E+05	-3.59E+03	3.59E+03

Table M-910. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

<b>LAMP-4</b>							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	98.5	-2.88E+04	2.89E+04	-2.81E+04	2.81E+04	-5.63E+03	5.61E+03
15.	150.	-8.09E+04	8.09E+04	-7.92E+04	7.93E+04	-5.29E+03	5.28E+03
30.	187.	-1.56E+05	1.56E+05	-1.54E+05	1.54E+05	-5.13E+03	5.12E+03
45.	212.	-2.60E+05	2.60E+05	-2.55E+05	2.56E+05	-5.68E+03	5.68E+03
65.	-1.38E+03	-4.75E+05	4.80E+05	-4.41E+05	4.41E+05	-6.76E+03	6.81E+03

# TASK 1/ROLL MOTION/MODEL 5613

Table M-911. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M-912. Minimum and Maximum of  $M_z^{\text{rad}}$  for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
$\phi_a$ (°)	$\langle M_z^{\text{rad}} \rangle$ Mean (kN-m)	Unfiltered $M_z^{\text{rad}}$		Filtered $M_z^{\text{rad}}$		Filtered $(M_z^{\text{rad}})^*$	
		Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.32	-1.90E+04	1.90E+04	-1.83E+04	1.83E+04	-3.66E+03	3.66E+03
15.	-8.16	-6.67E+04	6.69E+04	-5.56E+04	5.57E+04	-3.70E+03	3.71E+03
30.	-19.3	-1.71E+05	1.72E+05	-1.21E+05	1.22E+05	-4.04E+03	4.07E+03
45.	31.6	-3.52E+05	3.77E+05	-2.08E+05	2.11E+05	-4.63E+03	4.68E+03
65.	-159.	-7.19E+05	7.50E+05	-3.77E+05	3.77E+05	-5.80E+03	5.81E+03